

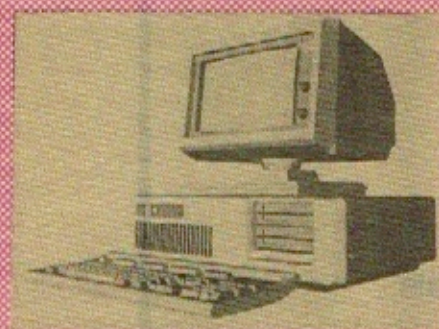
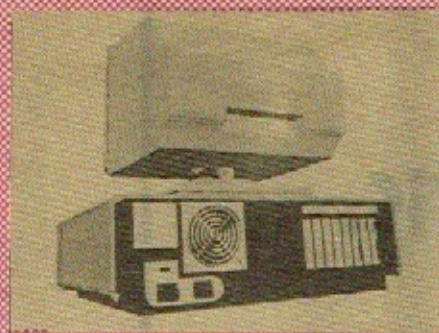
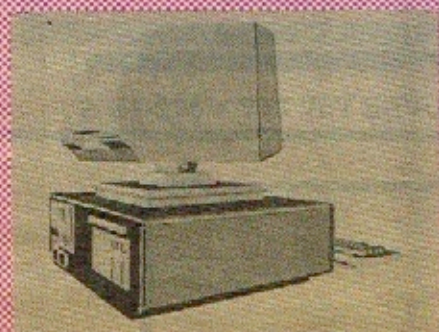
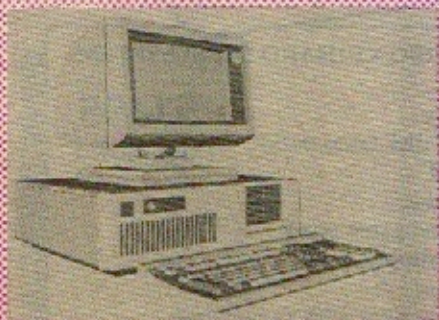
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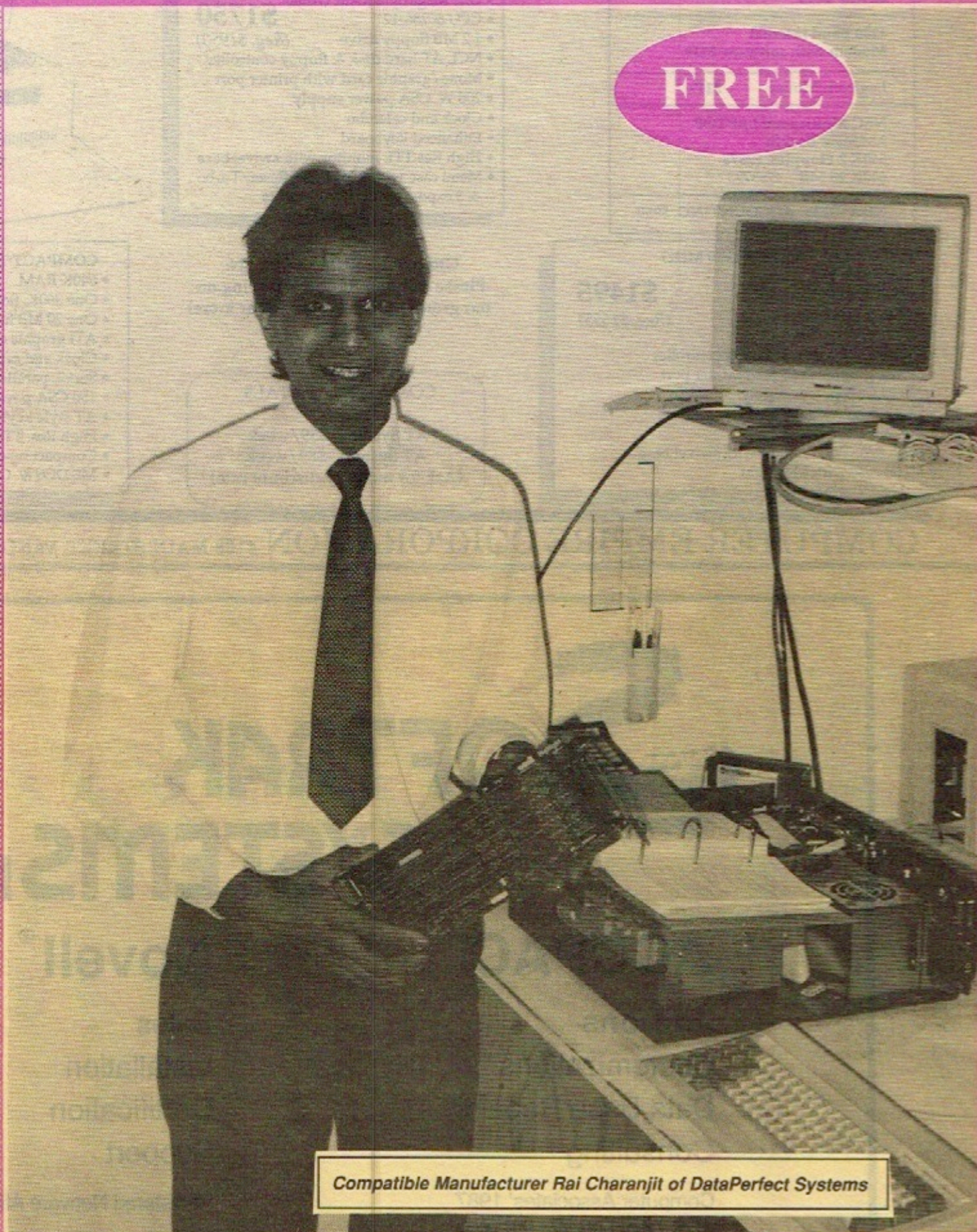
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Vol 1. No. 4 May 1988

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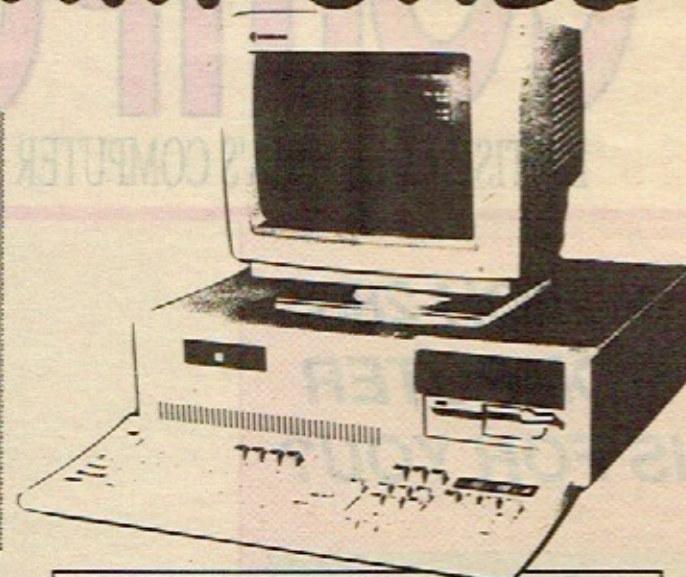
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The COMPUTER PAPER

BRITISH COLUMBIA'S COMPUTER INFORMATION SOURCE

Vol 1. No. 4 May 1988

The Computer Paper
Vol 1. No. 4

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3-D Illustrations are from IBM AT Clone Buyer's Guide and
Handbook by Edwin Rutsch, published by Modular Information
Systems (415) 552-8648 They were originally created by Joseph
Grossman of Enabling Technologies Inc. (312) 523-1113.
Photograph by Kirtan Singh Khalsa.

ADVERTISING

ADVERTISING MANAGER: Kirtan Singh Khalsa

DISTRIBUTION

DISTRIBUTION MANAGER: Syed Yalonda

PRINTING

PRINTER: Valley Web Graphics

SUBSCRIPTIONS:

The Computer Paper is published monthly. If you would like The
Computer Paper mailed directly to your home, please send a cheque
for \$14 to 3205 West 13th Avenue, Vancouver B.C. V6K 2V6
Telephone (416) 733-5596. This will cover mailing and handling for
12 issues in Canada. American subscriptions please send \$25.

This is Volume 1, No.4, May 1988

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LETTER FROM THE EDITOR

Well things are rolling right along here. We are up four more
pages in size this time, with thanks to our supportive advertisers.
The consensus seems to be that we are providing a much needed
vehicle for the computer community locally.

This month we look at buying 286 machines with an excerpt from
the IBM AT Clone Buyer's Guide and Handbook by Edwin Rutsch.
He is the author of a similar book on buying PC clones and plans
another on 386 in the coming months. A great book with an easy
reading style.

Mike Wolf is back with his second of a three part series on LANs.
He gets into the various typologies currently available. Interesting
reading if you are planning to network your PCs.

The Shareware Shelf we take a change of focus with a look at the
Macintosh side of things. Next month we will be back to the PC stuff
with an article on File Express.

Aldus Corporation gave us a call after our March Desktop
Publishing issue with the preview of coming features for Quark and
Pagemaker. They said wait til you see Pagemaker 3.0. Well we are
impressed. It is a nicely evolutionary product which adds in many
new features and improves an already good interface. Nelson Ruest
from Resolutions gives us the inside story on a first look at the new
Pagemaker.

Our calendar section keeps growing as more institutions discover
the benefits of being listed in a paper that gets read by 30,000
computer interested readers.

Check out our new advertising section this month: The Service
Sector it is a new format which gives advertisers a little more space
to explain their expertise in various areas. If you are looking for
someone to do that specialized computer service, look at these
listings, you may find just what you need.

As promised we have our first letters to the editor section. Drop
us a line and let us know what you think of the paper or if you have
any questions you'd like answered, we will try and point you in the
right direction.

Some special touches were added this time by Desmond Phillips
a student from McKay Institute's Desktop Publishing course. As
part of their training, students go out and work in "hands on"
environments. Desmond has added some nice touches this time.
Look for more next issue when we will have had more time to
integrate his talents.

I must end this letter now as the printer is waiting. Enjoy the issue,
til next time.

Kirtan Singh Khalsa

Kirtan Singh Khalsa
Editor/Publisher



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June Database & Hypercard

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July Vertical Market Software

Copy & Ad Deadline: June 20

August Networks

Copy & Ad Deadline: July 22

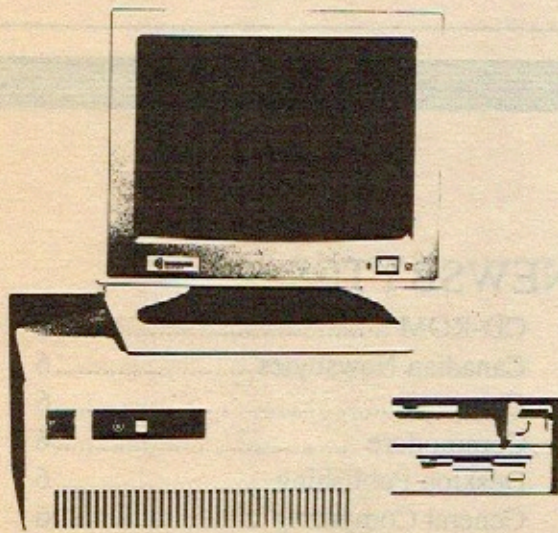
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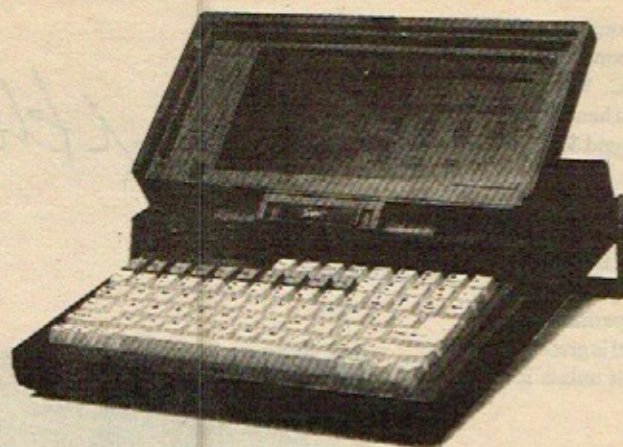
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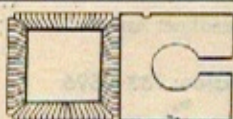
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LETTERS TO THE EDITOR

Files Express Fan

Dear TCP,

I enjoyed reading the April issue of your publication which I received this morning.

Regarding shareware and specifically database packages, I urge you to contact Expressware, a Redmond WA-based shareware software developer with a super product called File Express. We have used it for several years for all our mailings, class lists, etc. and use it in an introductory level database management class because new users can understand it in a very short time. It is well worth investigating if one is interested in a low cost, high quality database package. Expressware can be reached at 206-788-0932 or by mail at PO Box 230 Redmond, WA 98073.

I look forward to keeping up with the computer industry in B.C. via The Computer Paper.

Sincerely, Bill Fly, Computer Training Services, Seattle, WA.

Thanks for the support and the tip. Gordon Simmonds our shareware contributor is already working on a write up for our next issue on databases. File Express is on the list.

How good is Olivetti?

Dear TCP,

My husband and I have just read your Paper for the first time, and agree it would be worthwhile receiving! I haven't seen another publication that informs readers about computer products and services available specifically in the Lower Mainland area, so I'm sure you will fill a void successfully.

I am seriously thinking about replacing my Olivetti ETV 300 word-processor with a computer. What is the most cost effective way to get my files transferred over to the MS-DOS format? So far I have received a price from Olivetti and I would like some others to see which is the best way to go. Also are you or any of your readers familiar with the Olivetti ETV 260? It is said to be IBM compatible but it is more expensive than other clones I see advertised. I would like other opinions. Last question, what does ASCII mean?

Yours truly

Mrs. Linda Gronert
White Rock

ASCII stands for something or other, but basically it refers to a standard file format which most word processors can read. It is a fairly low level standard, which does not contain all the formatting information such as tabs, boldface etc.

Try Altertext (see their ad on page 19) for your disk conversion, they have good prices and for many types of translation, they are the only place in town that we know of. Is the Olivetti the best way to go? It depends, what do you say readers?

Much Needed Publication

To all involved!! Good luck on your publication, a "local" paper is much needed here in Vancouver

S. Walter

Wanted: Information on Hard Drives

Dear TCP,

Can you tell me where I can find books and magazines on hard drives?

W.H.
North Van

You might try the libraries at Capilano College, BCIT and UBC. Check with the various libraries before you go as to their policies on outsiders. The Vancouver Public Library has some stuff, but it is mostly dated and they don't seem to be carrying the current periodicals. The most complete suppliers of books and magazines on hard drives are the folks that bring you the Booksellers' Best Sellers List on page 23 of this issue. ie UBC Bookstore, Silicconnections, Granville Books, Cody's and Super Software. Also check out Prima Tech at 3900 E Hastings in Burnaby.

We Are Readable

Dear TCP,

I just happened to see your paper at the public library on Robson St. Our institute is in the organizational stages and I am now learning about computer needs and capabilities for business and research. I found your paper both interesting and informative, and the articles very readable. I appreciate your efforts and I wish you great success!

Sincerely,
John Oliver
Director of The Baca Institute.

Where are the BBS listings?

Dear TCP,

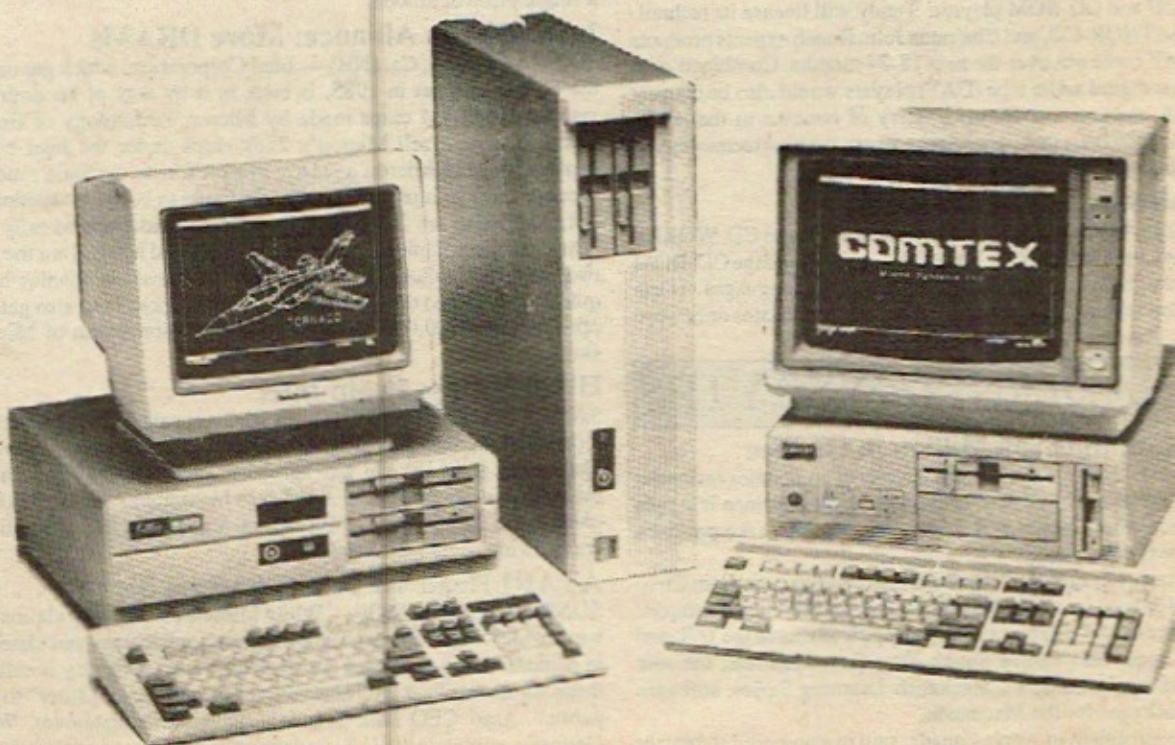
Saw your paper on a recent visit to Vancouver. A fine first effort. I immediately looked for a list of local BBS's and Xchanges in the back of The Computer Paper. I hope you print such listings in the future. Good luck.

David Rouh, Olympia Washington.

We are working on it. Thanks for the letter.

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NEWSBYTES

CD-ROM

Tandy Announces Erasable CD

FORT WORTH, TX (NB) — Rumors of a Tandy CD machine were given more substance than dreamed possible in an April 21 press conference. Tandy announced a reusable optical disk technology with about 500 to 600 megabytes of capacity that can be used with existing CD and CD-ROM players. Tandy will license its technology, called THOR-CD, and Chairman John Roach expects products using it will come out over the next 18-24 months. Combined with reports that digital audio tape (DAT) players would also be coming to the U.S. market, this set off a flurry of concern in the music business, which fears that consumers will use the new technology to their detriment.

WP Software for 7 Languages

Eisel, Tokyo, has released word processing software CD-WORD8 for NEC PC-9800 series. CD-WORD8 is multi-language CD-ROM software that includes 5 million words for seven languages. It has a translation feature for seven languages, but it translates only word for word. It is priced at 148,000 yen or \$1,200.

CANADIAN NEWSBYTES

Apple Commits \$56 Million in Quebec

MONTREAL (NB) — The latest in a series of companies announcing investments in the largely French-speaking province is Apple Canada Inc., which says it will invest C\$56 million in the province over the next three years.

The investment strategy includes buying printed circuits from Circo Craft of Montreal for use in Macintosh and LaserWriter II printers. Most of the circuits will be exported to Apple plants in the U.S. and Ireland. Apple also named Saturn Disq Inc., Montreal, the sole supplier of Apple Canada's Macintosh Learning Series, software training packages for the Macintosh.

David Rae, president of Apple Canada, said in a prepared statement that the Quebec investments "signal a major step in Apple Canada's investment strategy in Canada and support the growth and development of the Canadian technology industry." Daniel Johnson, Quebec's Minister of Industry and Commerce, welcomed Apple as a "new major partner in the development of a world-class information technology sector."

BCE Buys MDI

MONTREAL (NB) — BCE Mobile Communications, the cellular telephone and pager sister company of Bell Canada and Northern Telecom, is planning a share offering to help pay for another acquisition. The target is MDI Mobile Data International Inc. of Vancouver, which makes radios for police cars and taxis. The plan is to offer three million of BCE Mobile's common shares, which would raise public holdings in the company to about 8.5 per cent. BCE Inc., the holding company for all the Bell operations, would be left with just over 80 per cent, with the rest belonging to National Telesystem Ltd.

IBM Canada, Markham, Ont., says it will invest C\$70 million in upgrading its plant in Bromont, Que., this year. Since the fourth quarter of last year the company has created about 150 new jobs at the factory, which makes components from a range of IBM products from the Personal System/2 to 3090 mainframes.

Computer Associates Canada Ltd., Vancouver, is now shipping SuperProject Expert/2, the OS/2 version of its project management software. Suggested retail price is \$995.

CHIPS

Motorola Back in the U.S.A.

TOKYO (NB) — Motorola (U.S.A.) will resume the production of its 1 megabit dynamic RAM in the U.S., getting technological assistance from Japan's Toshiba. 1M DRAM will be manufactured at Motorola's Phoenix, Arizona factory by the end of the year. Motorola stopped producing memory chips in 1985. That's good news for personal computer makers in the U.S., since there's a serious shortage of memory chips there.

As was already reported, Motorola set up a joint venture in Northern Japan, in cooperation with Toshiba, in May 1987. Their joint firm Tohoku Semiconductor will manufacture Toshiba's 1M DRAM and Motorola's 68000 CPUs in May.

Motorola RISC Chip Runs at 17 MIPS

CHICAGO, IL (NB) — By concentrating on the most common commands through Reduced Instruction Set Computing (RISC) techniques, Motorola has created a new computer "brain," the 3-chip set 88000 series, which can run at up to 17 million instructions per second (MIPS). (That's a speed similar to the most modern mainframe, now adaptable to a desktop or even a laptop.) RISC chip sets like the 88000, along with the Sun SPARC or Intergraph CLIPPER chip, will run more complex modeling and simulation programs than ever before possible. All use the same operating

system, Unix System V from AT&T. Motorola, with \$2.2 billion in 1987 revenues, becomes the largest chip maker to enter the RISC chip business. Pricing is considered "aggressive" by analysts at \$2,100 for each 3-chip set needed in a total computer system. (A system will require one 88100 RISC chip, at \$495, and two 88200 disk caching chips, at \$795 each.) A battle is shaping up here among the 88000, the Sun SPARC, and new RISC chips from MIPS and AMD, but if they're all running the same operating system, the big winners will be users. The real battle, the ultimate battle, for the 1990s, is shaping up between Motorola and Intel, whose chips are used in the IBM line and PC clones. Motorola says its trump-card in the RISC chip wars is the 88200 disk caching chip. It claims this chip does the job of 50 chips on other RISC sets, including Sun's, using a single piece of silicon.

Intel/Micron Alliance: More DRAMs

SANTA CLARA, Ca. (NB) — Intel Corporation, which got out of the DRAM market in 1985, is back in it by way of becoming a reseller of DRAM chips made by Micron Technology of Boise, Idaho. Intel will sell Micron's 256k chips under the Intel label, thereby insuring Micron a steady market for its dynamic random access memory chips. The deal is designed to boost production of DRAMs which are in heavy demand worldwide, and to rally the "Buy American" spirit. Texas Instruments and Micron are the last two American DRAM manufacturers; Japanese companies have quickly dominated the worldwide DRAM market. Intel also gets an option to buy 600,000 shares, or \$11.6 million worth of Micron stock.

Hitachi Buys From Intel

SANTA CLARA, Ca. (NB) — In what appears to be a gesture of reconciliation over the recent US-Japanese trade dispute, Japanese electronics giant Hitachi has agreed to buy nearly \$2 million in microprocessors from Intel and Texas Instruments Japan. Hitachi plans to use the 16-bit and 8-bit custom made chips in air conditioners and video cassette recorders.

AT&T Head To Tell "The Real Story"

SUNNYVALE, Ca. (NB) — While Micron Technology claims the worldwide DRAM shortage is due to increased demand and changes in manufacturing, a former customer and now adversary is calling these arguments "a scam" and vows to bring "the real story" to the public. Atari CEO Jack Tramiel, speaking in Hannover, West Germany, contends the U.S. trade sanctions imposed against Japan for alleged dumping of DRAM chips below cost in the US, were "stupid and ill-conceived" and instigated by Micron Technology to "improve the position of Micron in the world market." Tramiel, not known for mincing words, says he was cheated out of a contract for DRAM chips by Micron when the semiconductor firm suddenly demanded higher prices after a telephone deal at a lower price had been made. Tramiel is suing the Idaho company for breach of contract, bad faith, and violation of antitrust laws. Micron isn't saying anything to the press on the advice of its attorneys.

COMMODORE

80386 & 68020 On The Way, Sales Up

NEW YORK (NB) — Irving Gould, chairman and CEO of Commodore International Ltd., says sales jumped 15 percent in the quarter ended March 31. In an interview in the WALL STREET JOURNAL, Gould added that the PC-compatible 80386-based machine that Commodore has been selling in Europe will be coming to the U.S. market in the fall. He also said that an upgraded Amiga, using the Motorola 68020 processor, will be available in both the U.S. and Europe about the same time. But all is not coming up roses for the once-frail Commodore. Most of the company's strength is based on European sales, while U.S. sales are accounting for only about a quarter or less of the company's revenue.

DESKTOP PUBLISHING

New Version of The Office Publisher

TORONTO (NB) — Laser Friendly Inc. has announced The Office Publisher Version 1.1. The new version of the desktop publishing package features 22 added complete document designs for a total of 43 templates, an international character set, hyphenation in 14 languages and improved documentation. Printer and word processor support have also been upgraded, adding support for new versions of XyWrite III, WordPerfect and Microsoft Word, along with additional printer drivers.

Laser Friendly has incorporated GEM 3.0, which it says allows for faster response time and point-ahead ability. Automatic font-scale correction and screen font representation have been added to improve the accuracy of the display. CONTACT: LASER FRIENDLY INC., 56 Shorting Rd., Scarborough, Ont. M1S 3S6, (416) 291-3736

Target Software Quits: Scoop in Limbo

MIAMI, FL (NB) — Target Software, publisher of the desktop publishing package "Scoop" and other products for the Apple Macintosh, has turned off its 800 number, let go its employees, and shuttered its doors. President Salvatore Papalano is reportedly working as a consultant to Bonsu Corp., a Sunnyvale, CA software distributor. But Target has not filed for bankruptcy, according to Manny Menendez of Deneba Software, another Miami software house.

Manny has a reason to know these things. He sold publishing rights on four products Deneba wrote, to Target, but then sued Target in

May, 1987 for non-payment of royalties. The products, which Target called MacLightning, the Merrium-Webster Thesaurus, Voila, and Memorandum, have been re-issued by Deneba under names like Canvas, The Coach Merrium-Webster Thesaurus, Spelling Coach, and Comment. Users were notified of the change, Deneba continues to support them, and Mr. Menendez says the suit remains in effect until a bankruptcy petition is filed. But no petition has been filed to Menendez' knowledge. "Scoop," he adds, was written by Lance Lewis, who lives in Southern California. "Last we heard, he was in the same position we are. He was making phone calls and couldn't get through. He was contacting attorneys." Menendez, who keeps in touch through the local user group grapevine, says he's been told Target employees all found new jobs.

DESKTOP PUBLISHING was too time-consuming for the editor of -30-, the newsletter of the National Editors and Writers' Society — Business (NEWS Business) in Toronto. After publishing several issues with a DTP system, the newsletter has gone back to simpler methods, and the editor, Scott Olson, notes in the latest issue that while the finished product doesn't look as sharp, the newsletter is taking much less time to produce.

GENERAL COMPUTING

Computers in The Schools Ineffective

WASHINGTON (NB) — Despite the "classroom computer revolution," few schools use computers effectively and most students are computer illiterates. That's the conclusion of a congressionally-mandated study by the National Assessment of Educational Progress (NAEP). The study — "Computer Competence: The First National Assessment" — tested the computer skills of 24,000 third, seventh, and 11th graders in the spring of 1986. The study found that most third graders could recognize a floppy disk, a keyboard, and a joystick. Nearly all seventh graders recognized the basic parts of the computer. But only a third of third and seventh graders and less than half of the 11th graders knew that the main role of a computer program is "to tell the computer what to do." Only 30 percent of 11th graders could define "algorithm."

The report by the Educational Testing Service of Lawrence Township, N.J., concludes that access to computers is too limited, school curricula don't integrate computer concepts, and teachers are not well trained. Of 837 school computer coordinators surveyed, 32 percent of third grade teachers, 23 percent of seventh grade educators, and 10 percent of 11th grade coordinators felt they were not well prepared to teach computer science. Congress established NAEP 19 years ago to conduct national surveys of various educational skills.

Xanadu Project to "Change the World"

SAN FRANCISCO (NB) — Ted Nelson, author of "Computer Lib" and inventor of the term "hypertext" back in 1960, says he has reached the first "new stage in 27 years of life" by signing an agreement to sell 80% of his Xanadu company to Autodesk of Sausalito, Ca. Xanadu is a project Nelson has launched to create a new way of viewing and comparing data without the restrictions of current file systems. Eventually the project is designed to create a "global library" accessible by all types of computers and searchable through hypertext technology.

In the surprise announcement, Autodesk has become the 20+-year-old project's first "angel." Convinced Nelson's idea has finally come of age, Autodesk is financing the project and its seven programmers for an undisclosed fee. The troop promises to have its first product born of the alliance within just 18 months — no small feat considering they are for all practical purposes still working from scratch.

Computer Press Association Awards

SAN FRANCISCO (NB) — The Computer Press Association has released a list of the third annual Computer Press Awards winners. There were more than 700 entries competing in 15 different categories and 42 of them received either first place or runner up. The event, sponsored by Citizen America, drew a sizeable crowd to New York's historic Helmsley Palace Hotel. Here are the best:

COMPUTER NEWSLETTER: Patricia Seybold's Office Computing Report

FEATURE/COMPUTER PUBLICATION: Winn Rosch, PC MAGAZINE, "The Copyright Law on Trial"

RADIO PROGRAM: Northwest Computing NEWS STORY/NONCOMPUTER PUBLICATION: Ann Field with Robert Neff, Frances Seghers & Kathleen Deveny, BUSINESS WEEK, "Big Brother Inc. May Be Closer Than You Thought"

OPINION OR EDITORIAL/COMPUTER PUBLICATION: Bill Machrone, PC MAGAZINE, "Coming to Terms With OS/2"

NEWS STORY/COMPUTER PUBLICATION: Willie Schatz, DATAMATION, "Supercomputer Dumping Alleged at US Universities"

COMPUTER MAGAZINE: PC MAGAZINE

HOW-TO BOOK: Joan Mitchell, THE NEW WRITER, MS Press

NEWSBYTES by Wendy Woods (Western USA), Ken Maize (Eastern USA), Dana Blankenhorn (South & Midwest USA), Masayuki Miyazawa and Keizo Yamamoto (Japan), Grant Buckler (Canada), Steve Gold (UK) and Peter Velonis (Europe) Copyright © 1988 NEWSBYTES

COMPUTER NEWSPAPER: COMPUTER-WORLD
 ONLINE PUBLICATION: Microbytes, Byte Publications
 PRODUCT-SPECIFIC BOOK: Danny Goodman, THE COMPLETE HYPERCARD HANDBOOK
 TELEVISION PROGRAM: Computers in Context
 NONFICTION COMPUTER BOOK: Theodore Nelson, COMPUTER LIB/ DREAM MACHINES
 FEATURE IN NON-COMPUTER PUBLICATION: Michael Rogers, NEWSWEEK, "Mimicking the Human Mind"
 COMPUTER MANUAL: Thom Hogan and John Zussman, "Guide to the Paradox Personal Programmer"

EXPERIENCE IN SOFTWARE, Berkeley, Ca., has donated 50 copies of its Idea Generator software to the American Foundation for AIDS Research. The Idea Generator is used for problem solving and planning. The firm wants to donate its product to other good causes as part of its new "Make a Difference Where We Can" campaign. Contact Craig Settles at 415/644-0694.

ELECTRONIC TEXT CORPORATION, Provo, Utah, has released four sets of diskettes packed with the collected works of William Shakespeare. At \$99 per set or \$299 for the poet's life's work, the series runs on IBM PCs with WordCruncher for text retrieval.

COMPUTER APPLICATIONS, Raleigh, NC, introduced II in a PC, a \$150 product that lets IBM PS/2 computers run Apple IIe software. It ships the end of April.

MACINTOSH

Apple and Microsoft Profits Soar
 CUPERTINO, Ca. (NB) — Apple Computer reports earnings for the 1988 fiscal year topped \$201 million, the highest ever recorded for the computer maker, and a figure 118% higher than this time last year. The news marks the third consecutive quarter that Apple has also recorded revenue increases of over 50%. Put another way, Apple is making twice as much money as it did this time last year.

Del Yocam, Apple's chief operating officer, attributes the stellar results to not only an overwhelming demand for Macintoshes, which by some estimates is growing at a rate of 40% a year, but to its new credibility in the corporate arena. "Apple is succeeding in the business markets. Our customer base is broadening to include corporate, technical, and large systems users." Microsoft, meanwhile, earned \$37.3 million, up nearly 100% over the same period last year when it earned just \$19.1 million. This doubling of earnings is attributed to a 48% increase in international revenue, "notably strong due to increased product shipments and favorable exchange rates," according to a statement from Microsoft President John Shirley.

One thing the fiscal results prove — both firms clearly have more than enough money to pay the lawyers in their current "look and feel" battle over the Macintosh screen display.

Multi-User Mac On The Way?

CUPERTINO, Ca. (NB) — MACWEEK magazine reports that Apple is preparing to introduce a Motorola 68030-based, floor-standing, multiuser Macintosh in October or November, but Apple is denying the report. Referred to as the Apple IIX, it reportedly has connections for six terminals, will include ROM-based Ethernet support, an internal 500 megabyte WORM drive and an optional CD-ROM drive. Apple Computer's CEO John Sculley has repeatedly stated that no new computer introductions will occur in 1988, a statement being echoed again by an Apple Computer spokeswoman.

What is clear is that a 68030-based system will require a rewrite of the Macintosh operating system to accommodate the additional memory and processing power of Motorola's high-end chip. That fact has led many to speculate that we indeed will not see the IIX before 1989.

Microsoft/Apple Show License

CUPERTINO, Ca. (NB) — In what could turn out to be one of the most intriguing software copyright cases in computer history, feuding Apple Computer and Microsoft have jointly released a

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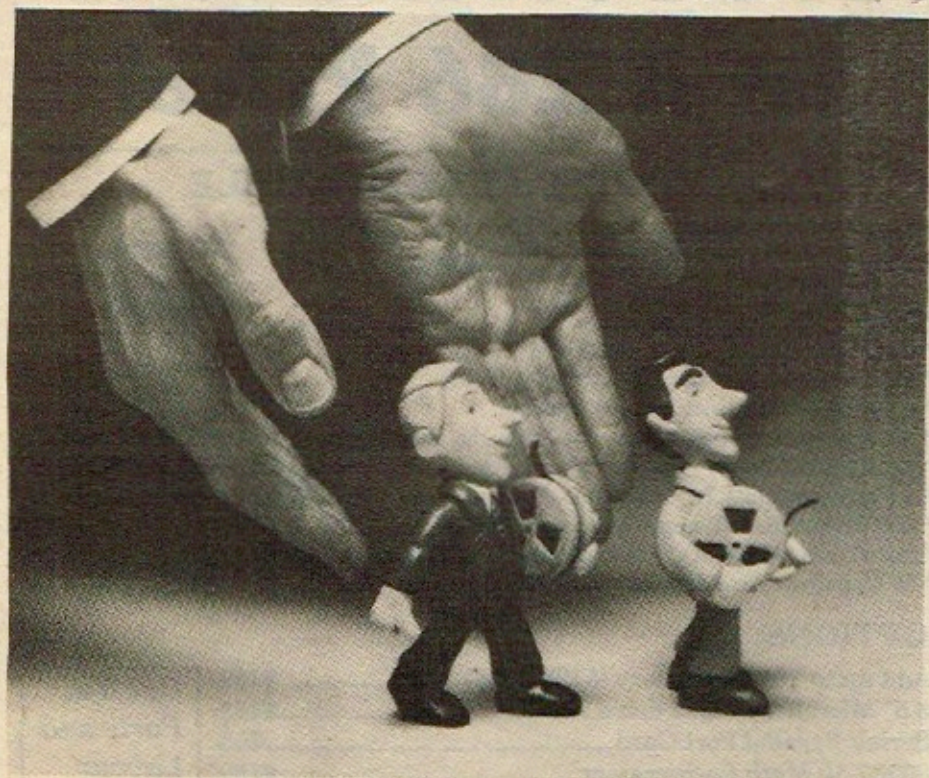
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previously confidential agreement which is at the root of their dispute. The 1985 agreement allows Microsoft to use certain Macintosh-like displays in "present and future software programs." In this particular case, it was the use of windows and icons in Microsoft Windows version 1.0. However, Windows version 2.0 is the center of the dispute — Apple claims the visual interface exceeds the boundaries set up in the original agreement; Microsoft denies this.

The document was made public after both sides waived the confidentiality clause and released it to the press, saying the release would have been made during court proceedings anyway.

Meanwhile virtually everyone is saying Apple's lawsuit is really a shot at IBM whose Presentation Manager, when it's finally completed, is expected to be the most Mac-like of all clone interfaces. Apple Computer is probably trying to confuse the market for the product, a trick which worked in other famous corporate suits.



Microsoft Claims Lawsuit Hurts

REDMOND, Wa. (NB) — Microsoft has gone on the offensive against Apple Computer because, it says, of mounting losses directly attributable to the lawsuit Apple filed against it. This information comes in a complaint Microsoft filed in U.S. District Court, San Jose (4/7) which states that Microsoft seeks unspecified damages as a result of losses from the suit. No dollar amount of damages or losses were stated but Microsoft accuses Apple of slander of its title to Windows 2.03 and interference with Microsoft's relationship with its customers.

Microsoft further denies Apple's charges that Windows 2.03 violates Apple's copyright on its visual interface. "Visual displays, including graphic images, in which Apple has claimed copyright protection are not original to Apple and thus are not copyrightable," says the complaint.

Mac Word Processing Wars

SAN FRANCISCO (NB) — Three giants in the word processing arena are moving in fits and starts toward the Macintosh word processing market. WordPerfect, no sooner than it announced that WordPerfect for the Mac was shipping, had to recall 8,000 programs due to numerous bugs. The problems resulted from a "bad master" according to a WordPerfect spokesman.

Then there's the Macintosh word processor coming from MicroPro, code-named Challenger. The product is being beta tested now in hopes of a promised June release. The word processor reportedly has several unique features, not the least of which is an ability to bind text to a curve.

And finally, Ashton-Tate's FullWrite is taking its time in the firm's labs....there's the small matter of numerous bugs that are causing longer than expected delays. AST RESEARCH, Irvine, Ca., will delay shipment of its Mac86 PC coprocessing board for the Macintosh SE until the third quarter of this year. The reason for the delay is that AST continues to make further improvements to the board, according to David Troup, AST product marketer.

Mac Clones Wait in Taiwan

CERRITOS, Ca. (NB) — A consortium of six Far Eastern computer manufacturers doing business in the U.S. has a Macintosh-compatible computer in the wings, NEWSBYTES has learned, and is awaiting action by the U.S. patent office (and presumably Apple attorneys) before reaching the U.S. and international market. The prototype was recently shown in West Germany to a select few at the Hannover Fair trade show. UCM, Incorporated's spokesman Norman Dai told NEWSBYTES that his firm is applying for a patent on the Macintosh-compatible BIOS right now. The BIOS, he says, was designed by an Australian software firm but he declined to name the company. "They've signed a cooperative contract with us. We will be the offshore manufacturer of their product," he said.

Good Reviews for Bedford

VANCOUVER (NB) — Bedford Software has signed another major distributor for its line of

integrated accounting packages. Ingram Software Ltd. will be distributing the packages to more than 2,000 dealers across Canada, with special emphasis on selling French-language packages to the Quebec market. The announcement follows the signing of SoftSel as a distributor in late February. Bedford is also crowing over a review in INFO WORLD of its new Macintosh accounting software Simply Accounting. INFO WORLD's reviewers called the package "simply magnificent" and a great starter system for Macintosh users. The publication gave Simply Accounting a rating of 7.9 over-all, scoring it excellent in documentation, ease-of-use and ease-of-learning.

"Report's" for Hypercard Buggie?

MOUNTAIN VIEW, Ca. (NB) — HyperCard applications developer and consultant Dan Shafer was recently shocked to find his Macintosh roll over and die when a certain procedure was used while running Activision's new HyperCard application REPORTS!. Shafer told NEWSBYTES when he set up a report in search mode and selected a stack with a text field in any card, his system would crash. He says he informed the people at Activision of this bug but they decided to ship the product anyway.

Shafer says some 9500 copies of this buggy version have gone out the door at Activision, a figure Activision would not confirm to NEWSBYTES. But Activision spokeswoman Melinda Mongelluzzo does confirm the existence of this and other bugs and adds they have been corrected. New replacement disks are reaching the reviewing press and people who have purchased Reports! and have sent in their registration card will receive a free replacement disk in the mail. Activision has also made its bug-patch available on Genie, Compuserve, Macnet, and its own bulletin board system.

New Hypercard Version Coming

CUPERTINO, Ca. (NB) — Apple Computer is planning a next-generation HyperCard release for August of this year, according to Bill Atkinson, HyperCard developer. Atkinson reportedly says the introduction of HyperCard 2.0 is being slated for the Boston MacWorld Expo. What will be in the new version? All we're told is that it will include many "anxiously awaited enhancements." In the meantime, version 1.2 of HyperCard will be out in May. This version will support CD-ROM and its introduction coincides with the release of Apple's CD-ROM drive, the Apple CD SC.

Canadian Mac Language is Graphic

HALIFAX (NB) — ProGraph is a programming language that lets you write Macintosh programs by drawing pictures while matching the power of popular programming languages, according to Phillip Cox, a partner in the company that developed it. Gunakara Sun Systems Ltd. will bring ProGraph to market in late June or July—possibly under another name since there are problems with registering the ProGraph name in the U.S. To be sold for about \$150 U.S., the initial version will contain an editor and an interpreter. A second version, adding a compiler, is planned for the fall, Cox said. CONTACT: GUNAKARA SUN SYSTEMS LTD., Suite 19, 1127 Barrington St. Halifax, N.S. B3H 2P8, (902) 429-5642

Run Mac Disks on PC

PORTLAND, Oregon (NB) — Want a cheap way to run Macintosh data disks on a DOS machine? Central Point Software has just announced "Deluxe Option Board," a half-sized card and software which enables a PS/2 Model 25 or 30, or a PC or AT compatible to run a Macintosh data disk in its own 720K 3.5" disk drive. The standard bus version is shipping now; a micro channel version is expected in August. The price of the board is \$159.

PC NEWS

Computerland Chief vs. Wordstar

SAN RAFAEL, Ca. (NB) — A lot of people are wondering if Computerland founder William Millard and his attorneys have gone off the deep end on their South Pacific island retreat. Millard has sent his attorney Terry Giles packing for several parties in order to "set the record straight." Those sued include MicroPro International, as well as an early investor in Computerland. Giles pledges to spend the next three or four years "resolving these issues."

And the biggest issue is whether MicroPro stole WordStar, the world's most-used word processing package, from Millard's now-defunct company Imsai Manufacturing Corporation. Millard believes the company's founder Seymour Rubenstein, and former MicroPro programmer John Barnaby, did indeed use elements of an early Imsai product called NED in the design for WordStar and its predecessor Word-Master. Meanwhile, MicroPro calls the charge "laughable." Chief Executive Leon Williams says he's "as concerned about this as about an iceberg hitting the Golden Gate bridge."

CHRONOS SOFTWARE, San Francisco, Ca., has introduced Who/What/When, software for project and time management for the IBM PC. Scheduled to ship in April, the \$189.95 software is designed for the busy manager who needs help keeping track of people and projects.

8-in-1 Software: \$US 59.95

CAMBRIDGE, Mass. (NB)—Spinnaker Software Corp. has a new, integrated program for PCs and clones. Called Better Working Eight-in-One, it offers an outliner, word processor with spelling checking, a spreadsheet, a database, communications, graphics, and a desktop organizer. Commands are consistent across applications. The program is getting good reviews and the price is right: \$59.95. It takes 256 K of RAM, two drives, a graphics card, and a modem to get the most out of it. **CONTACT:** Spinnaker Software Corp., One Kendall Square, Cambridge MA 02139.

New Version of Wordstar Due

SAN RAFAEL, Ca. (NB)—Look for a new version of WordStar in May from MicroPro International. This version, WordStar Professional release 5, will have 300 new features and conforms to IBM's System Application Architecture. Among the improvements are simultaneous multiple-page viewing, support of more fonts, and a variety of utilities including a text retrieval program and background telecommunications functions. The suggested retail price is expected to be the same as the current release 4 — \$495. Low-cost upgrades to this new version will be available to current owners of WordStar professional software.

Vapourware in Lotus Land

CAMBRIDGE, Mass. (NB)—Lotus Development Corp. is facing a Securities and Exchange Commission investigation and a nose dive in the price of its stock. The turmoil follows the revelation that Lotus won't get Release 3 of 1-2-3 into users hands until the end of the year, the resignation of a key Lotus executive, and heavy sales of Lotus stock by company insiders including Chairman Jim Manzi. Lotus confirmed the informal SEC investigation, which is focused on why Manzi, Senior Vice President Michael Kolowich, R&D chief Edward Belove, and Palmer True, vice president for manufacturing, unloaded large blocks of company stock a month before the announced delay of Release 3. Lotus denies that the sales had anything to do with the delay, arguing that the decision to hold the new software off the market was made after the executives sold their stock. The stock tumbled more than 10 percent following the announcement.

The problem with Release 3, according to Manzi, is that it is too large to work in DOS, requiring OS/2. Manzi said Lotus is now working to get the program down-sized sufficiently so that it won't leave its installed base behind. In the meantime, industry analysts expect Borland's Quattro and Microsoft's Excel to eat 1-2-3's lunch until a new version is available. Manzi professes to be "comfortable" with current sales of 1-2-3.

PC SIG, Sunnyvale, Ca., has published "Up and Running in 15 Minutes," a guide to using 8 of the most popular shareware programs, PC File+, PC Calc+, PC Outline, PC Write, Procomm, the Galaxy word processor, Automenu and Powermenu. The book also offers discounts of up to \$50 on shareware. \$12.95 from PC SIG. Call 408-730-9291.

OS/2-PS/2

Dell Announces its PS/2 Clones

AUSTIN, TX (NB)—Dell Computer quietly beat Tandy to the punch by a few days with its PS/2 Model 60 and 80 compatible machines, the System 400 and System 500. Why quietly? Company officials hadn't figured a price, and apparently hadn't figured IBM's legal or financial attitudes toward its machines. "We don't expect a tremendous demand for" PS/2 clones with the Micro Channel bus right now, Chairman Michael Dell was quoted as saying. Chips + Technologies makes the clone chip-set used in the new Dell line, Phoenix Technologies makes the BIOS. Western Digital and Microsoft also endorsed the new machine as being a legitimate clone, not a copy.

While Dell was the first to announce a PS/2 compatible, it will not be the first to ship. Tandy's expected to ship its PS/2 clones first. **CONTACT:** John Elliott, DELL, (512)338-4400

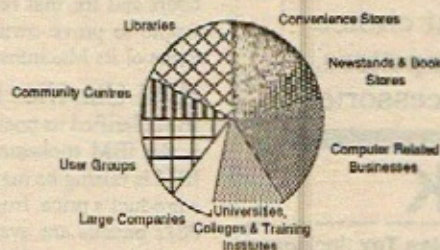
IBM Buys Insurance

MOUNTAIN VIEW, Ca. (NB)—IBM has virtually guaranteed continued access to an operating system with windows and icons, no matter what the outcome of Apple's suit against Microsoft and Hewlett Packard over the visual tools, thanks to a deal it has just struck with Metaphor Computer Systems. Metaphor, started by two former Xerox executives credited with inventing the symbolic interface that later appeared on Apple's Macintosh, has been making software that uses a version of the original Xerox "Star" graphic

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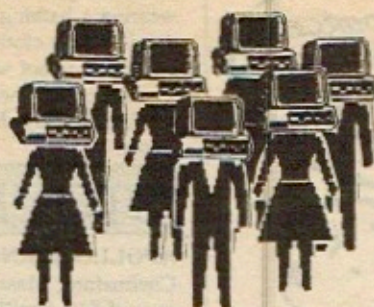
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☐ 3) 2-5 people ☐ 4) 6 or more

3) Do you plan to keep the paper after you read it? ☐ 1) yes ☐ 2) no

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- ☐ 1) President/CEO ☐ 2) Vice President
☐ 3) Senior Manager ☐ 4) Middle Manager
☐ 5) Entrepreneur ☐ 6) Consultant
☐ 7) Salaried Employee ☐ 8) Other

5) Are you: ☐ 1) Male ☐ 2) Female

6) What best describes your office?

- ☐ 1) Branch ☐ 2) Local ☐ 3) Head

7) Do you influence your company's decisions on purchasing, leasing or renting any of the following? Check all those that apply:

- ☐ 1) accounting services ☐ 2) Desktop publishing
☐ 3) computer consulting ☐ 4) computer hardware
☐ 5) computer software ☐ 6) office equipment
☐ 7) office furniture ☐ 8) comp. stationery
☐ 9) telecomm. equipment ☐ 10) on-line computing
☐ 11) none of the above ☐ 12) other

8) What category best describes the industry you work in?

- ☐ 1) retail trade ☐ 2) wholesale trade
☐ 3) manufacturing ☐ 4) construction
☐ 5) resource based ☐ 6) banking & fin.
☐ 7) insurance ☐ 8) accounting
☐ 9) business services
☐ 10) transport & communications
☐ 11) health, legal, education
☐ 12) professional: engineering, architectural
☐ 13) public service/government

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- ☐ 1) 1-5 ☐ 2) 6-10 ☐ 3) 11-25
☐ 4) 26-50 ☐ 5) 51-100 ☐ 6) 101-250
☐ 7) 251-500 ☐ 8) 501-1000 ☐ 9) 1000+

10) What is your company size by total annual sales/revenues?

- ☐ 1) Under \$100,000 ☐ 2) \$100-250,000
☐ 3) \$250-500,000 ☐ 4) \$500-1,000,000
☐ 5) \$1-5 million ☐ 6) \$5 million +
☐ 7) other

11) How old are you?

- ☐ 1) under 25 ☐ 2) 25-34 ☐ 3) 35-44
☐ 4) 45-54 ☐ 5) 55-64 ☐ 6) over 65

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- ☐ 1) High School
☐ 2) Some/completed post-secondary
☐ 3) University degree

13) In what area do you live?

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14) What is your household income?

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☐ 3) \$40,000-49,999 ☐ 4) \$50,000-59,999
☐ 5) \$60,000-69,999 ☐ 6) Over \$70,000

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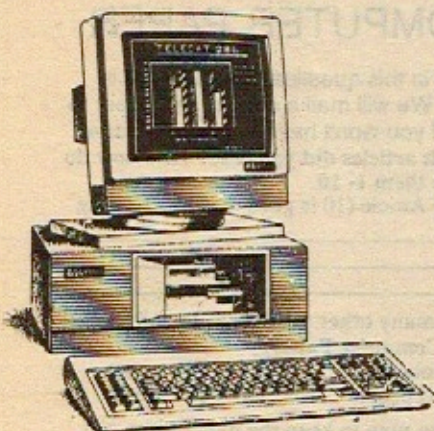
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interface and sells it with workstations to the package goods industry. IBM has purchased 10% of Metaphor, at a cost of \$10 million, and will jointly develop software with Metaphor for use in IBM's PS/2 line. At first glance it looks as if the deal is in response to Apple's lawsuit but officials from both firms claim it's not — Metaphor and IBM have been talking about a team effort since 1987, the press was told. IBM's partial buy-out of Metaphor has prompted two big questions in everyone's mind. How will this alliance affect Microsoft, which has been the only designer of IBM's graphic interface (Presentation Manager) for OS/2 machines, and how will it affect Apple's suit? Apple is not taking IBM nor Metaphor to court and for that reason it may be difficult for Apple to prove ownership of the windows and icons of its Macintosh interface.

IBM Clarifies PS/2 Fees

IBM clarified its position a little in a release April 8. An IBM spokesman told NEWSBYTES that IBM is raising its maximum license fees to 5% of a product's price, from a maximum of 1%, but all PS/2 patents are available for license. However (and this is the tricky part), copyrights, chip masks, trademarks and exterior designs are not available for license. So, any PS/2 clone maker, to avoid an IBM legal challenge, would be paying Big Blue up to 5% of his clone income, and still would not be totally out of the woods. Clear?

IBM: Is the Emperor Clothed?

NEW YORK (NB) — Just what is the "Micro Channel Architecture" anyhow? The WALL STREET JOURNAL has posed that question on its front page and concluded that the answer may be a lot of blue smoke and mirrors. Calling it "one of IBM's most audacious marketing gambits ever," reporter Michael Miller notes that the Micro Channel is "IBM's mystery ingredient." In short, says Miller, the Micro Channel is Big Blue's equivalent of the MFP inside Colgate toothpaste or the "Chlorinol" in Comet cleanser. It's as much designed to differentiate the product from others in the crowded consumer market as it is to accomplish a technical task. Miller quotes the Editor at Lotus Development that the Micro Channel is "a lot of FUD," which is high-tech talk for "Fear, Uncertainty, and Doubt," and that "the emperor's wearing a bathing suit." IBM insists, of course, that it is fully clothed in the customary blue flannel. "This is not whether you're buying Shell or Texaco, or whether you've got MFP or not in the toothpaste," says Big Blue's PC-meister William Lowe.

STOCK MARKET

APOLLO RISING — Apollo Computer Inc. of Chelmsford, Mass., had solid first quarter earnings of \$10.4 million (29 cents per share). First quarter of last year saw earnings of \$6.4 million (18 cents per share). Apollo's sales for the quarter rose to \$168.9 million, versus \$123.4 million for the prior year's first quarter. Apollo says sales of its Series 10000 desktop supercomputer, which had \$10 million in initial orders, will make a big contribution to its second quarter sales.

INTEL CORPORATION says its earnings leaped 262% in its last quarter, buoyed by demand for its 80386 chips. This towering figure has led some analysts to suggest this will be a record-breaking year for Intel.

MICROSOFT, Redmond, Wa., has shipped the latest update of OS/2 Software Development Kit. It not only contains a prerelease version of OS/2 version 1.1, but development tools for OS/2 Presentation Manager applications.

UNISYS SIZZLES — Unisys Corp. of Blue Bell, Pa., reported first quarter earnings were up 35 percent, to \$149.3 million (72 cents per share), compared to a net of \$110.2 million (57 cents per share) for the first quarter of 1987. Revenues were \$2.37 billion, down from \$2.42 billion last year, which means that Unisys was able to produce larger profit margins for the period.

DEC DULLSVILLE — Digital Equipment Corp. of Maynard, Mass., rang up lackluster results for its third quarter, recording a net of \$305.1 million (\$2.33 a share) versus \$307.6 million (\$2.29 a share) for the comparable period last year. Revenue for the quarter was \$2.82 billion, versus \$2.41 billion a year earlier. But there is a silver lining in DEC's cloud: sales of its low-end machines are

outstripping supply.

THE FAT GET FATTER: COMPAQ, NCR, EDS, CRAYHOUSTON (NB) — Compaq earned \$47 million on revenues of \$439 for the first quarter of 1988 alone, doubling old records, the company announced April 21.

LOVE THAT LOTUS — Lotus Development Corp. rolled up a record for first quarter revenue of \$117.3 million, compared to \$84.8 million for the first quarter of last year. Earnings were \$18.3 million (40 cents per share) versus \$13.7 million in earnings (31 cents per share) for the 1987 first quarter. What fuels the continuing growth of Lotus? Good old 1-2-3, says the company.

GEMINI TECHNOLOGY INC., Richmond, B.C., reported profit of C\$88,000 in the quarter ended March 31, compared with a loss of C\$553,000 a year earlier. Revenues were C\$1.8 million, up from C\$82,000. Gemini makes semiconductor chips.

TELECOMMUNICATIONS

Beyond Electronic Mail

ALLEN TOWN, Pa. (NB) — The Electronic Networking Association will host a conference in Philadelphia May 12-14, aimed at the outer reaches of computer-oriented communications. Topics will include items such as "global boundary bashing," "networking for social change," "building online communities," "electronic democracy," "online interactive publishing," and the like. ENA, established in 1985, explores computer communications and particularly computer conferencing. Registration is \$275 for ENA members, \$300 for non-members. CONTACT: Nan Hanahue, Executive Technologies Inc., 2744 Allentown PA 18104, 215-821-7777

Crosstalk Issues New Remote

ROSWELL, GA (NB) — DCA's Crosstalk division, as expected, has released Remote 2, a new version of its old Remote program used to operate a PC remotely. The idea is to let you use your office PC from home, or to let the guy who's handling your office's computer software get into it for updates, or to let your salesman update their own records from the road. Older versions of this program weren't quite as good as advertised, reportedly because Crosstalk bought rights to someone else's program and didn't have its crack programming staff, led by Jeff Garbers, write it from scratch. Hopefully this package, priced at under \$200, or \$130 if you just need the Host program, will do the trick.

Teletext Board For a PC

A small Morgan Hill, California firm called ATI or American Teletext has an add-in board for a PC which allows you to read teletext broadcasts from cable, satellite, or broadcast signals, on your personal computer. Why, do you ask, would one want to do this? Well, stations throughout the country are experimenting with broadcasts of teletext, in which one can find free weather, stock quotes, news, even traffic reports, in the vertical blanking interval, or unused portion of the broadcast bandwidth. There are four national teletext services currently available, the largest of which are Electra and Tempo from Superstation WTBS. The only other ways to receive these teletext broadcasts are via a special TV-top decoder or with a new Zenith Digital System 3 TV set which has a built-in decoder. The PC board costs less than \$400, but company officers admit the market for such a board is just in its infancy. The major hurdle is getting both more TV stations and advertisers to support teletext transmissions.

By the way, the teletext broadcast is made at 56,000 bits per second or 56K baud. The lightning fast speed enables the transmission of hundreds of pages of data per second. Consequently it takes only a moment to receive a particular "page" you select with your computer; the system waits the fraction of a second it takes to receive it, then "grabs" it for your viewing. CONTACT: Bob Evans, ATI, 4408/778-7722

UNIX

Apollo Cuts Prices

CHELMSFORD, Mass. (NB) — Apollo Computer Inc. has knocked more than a third off the prices for its Series 4000 workstations. These machines are Apollo's near-low-end computers,

and the new prices should make them competitive with souped up Apple Macintosh IIs and 80386 PC clones. The entry level price for the Apollo is now \$8,990, while the price of the color version of the same engineering workstation starts at \$13,990. The machines run the Unix operating system.

NEXT Computers Reach Developers

PALO ALTO, Ca. (NB) — Some ten prototype models of the NeXT workstation have been shipped to developers, according to inside sources, and more are on the way. Assembled by hand at the firm's Fremont, Ca. manufacturing facility, the workstations are said to be 68030-based and run a version of Unix with a proprietary graphic interface. Reports indicate that the products are loaded with a Sony digital audio chip for knock-out sound; the screen routines will run with Adobe Systems' Display PostScript. Nobody is saying when we should expect to see the workstation officially announced by NeXT. However the best guess is that we'll see it announced within the next few months in time for the fall academic buying season.

Unix Box Due in April From Zenith

Due from Zenith is a new Unix machine supporting up to 64 terminals through multiple 80386 processors. (Obviously someone has seen the new AT&T computer ad where the sanctimonious AT&T advocate claims you can hang 32 terminals off one AT&T PC.) Initially the new Zenith box will run Xenix, but Microsoft has announced it's merging Xenix with AT&T's Unix System V so it will run "standard" Unix. The machine will go into the old Z-248 box, and will be Zenith's entry in a big new contract now being bid by the Air Force and Navy, according to Wayne Rash of "Microbytes Daily." Zenith would confirm neither leak. CONTACT: Glen Nelson, ZENITH, 312-699-4800

Sun's New 386 is No Ordinary PC

MOUNTAIN VIEW, Ca. (NB) — Want Unix and DOS at the same time? No problem. Sun Microsystems has just introduced its first Unix and DOS-running 32-bit workstation based on Intel's 80386 microprocessor. The 386i series, ranging in price from \$8,000 to \$14,000, is yet another carrot Sun is offering to businesses to lure them into the Unix market. The move also signals a sudden boldness on the part of Sun Microsystems to take on Big Blue itself whose PS/2 line is based around Intel's microprocessors.

IBM Gives Details on AIX

FRANKFURT, WEST GERMANY (NB) — IBM announced a series of new products across its entire product range giving full support to the AIX, UNIX-like operating system. Products range from the AIX/370 to the AIX for the PS/2. IBM announced that AIX/370 is the UNIX-like operating system for the System 370 and System 3090s. The operating system will also function on the 9370 system. The models supported are from the 9370 model 20 through the 3090 600E. Also in the case of the PS/2 systems, the AIX will be supported on the PS/2 model 80, or any models that use the 80386 processor chip and the RT/PC. The AIX operating system which will be equivalent to the UNIX V release 3, will also support IBM's SAA, the Systems Applications Architecture, which amongst other things, proposes a unified user interface for software running on AIX. In addition, IBM also announced the AIX will be fully compatible with POSIX, the UNIX standard proposed by IEEE and favored by the European Community as the operating system of the future. All of these products will be able to be connected through the Ethernet Local Area Network which follows the IEEE 802 standard. This means that the AIX/370, the AIX/PC, and the AIX/RT will be able to exchange information easily and effectively. AIX/370 will also be able to run under the VM/SP, VM/SP HPO and VM/XA SP operating supervisors together with other operating systems. Since the PS/2 can connect other PCs to it, as does the RT/PC, this means that IBM has announced a completely homogenous operating environment for all of its systems (even the System/36/38 is supposed to get AIX in the near future). The RT/PC can also have an eight port adapter that can be connected to eight PCs or terminals able to access the 370/AIX in a virtual circuit.

In addition, IBM also said that the X-Window graphics operating environment will also be im-

plemented, giving mainframes, for the first time, the ability to run graphics-oriented (Presentation or MS Windows-like) user interfaces.

AT&T Promises Friendly Unix

NEW YORK (NB) — American Telephone & Telegraph Co. is announcing a graphical interface designed to make Unix acceptable to business users. AT&T officials told NEWSBYTES they expect the new interface will spark the long-awaited boom in Unix for personal computers. But the new program may also lead to legal difficulties, if a litigious Apple takes out after AT&T as it has Microsoft and Hewlett-Packard. The new Unix front end is a joint product of AT&T and Sun Microsystems, according to industry officials. Sun has recently rolled out a series of 80386 machines which may be the first platforms for the new, friendly Unix. The icon-based interface for Unix also is expected to work with the unified Unix that AT&T and Sun are expected to unveil in 1989. It will be up to the major software applications developers such as Lotus, Microsoft, and Ashton-Tate, to create software that will run on Unix, although there are rumors that Sun is about the spin off an outside software firm that will write Unix applications. AT&T says it has talked to Lotus and Ashton-Tate about their project.

Lotus Developing Unix 1-2-3

NEW YORK (NB) — Lotus Development Corp. is working on a Unix-based version of its 1-2-3 spreadsheet, which will run with the new AT&T graphic interface, called Open Look. AT&T said Open Look, created by Sun Microsystems and based on Xerox's work at the Palo Alto Research Center, will be out by the third quarter of this year. Lotus announced no timetable for its Unix version of 1-2-3. "Lotus has been developing for some time a Unix version of the best-selling software, 1-2-3," Lotus chief Jim Manzi told reporters at AT&T's unveiling of Open Look. Officials from Ashton-Tate Corp. were also at the event.

AT&T said it expects to offer Open Look this summer as a window manager for its 6386 workstation, a machine based on the Intel 80386 chip. AT&T says user interface tool kits are planned to be available in source code early next year. Open Look's graphic conventions include push pins to tack menus to the screen for future reference and an elevator that moves up or down in text. The interface is mouse-based and lets users point and click buttons that resemble those on household appliances. The interesting part of this suit is that AT&T bypassed Apple and went directly to the originator of the icon and window-based operating system, Xerox, perhaps in an attempt to keep its distance from litigation-happy Apple. Still there is the question: will Apple sue?

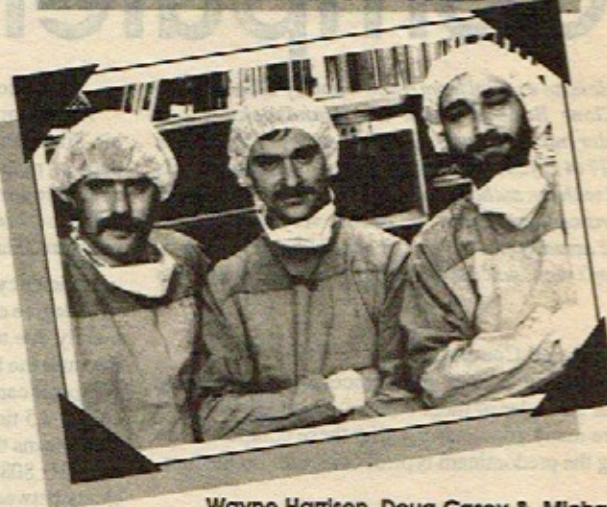
Unisys Keeps Growing, Adds Unix

DETROIT (NB) — When Michael Blumenthal, the cigar-chomping chairman of Unisys, was Treasury Secretary under Jimmy Carter, he was roundly vilified for his handling of the economy. And when, as chairman of Burroughs Corp., he announced the merger with Sperry which would create Unisys Corp., folks laughed and said he was headed for another fall.

Who's laughing now? Well, Blumenthal is, all the way to the bank. He told a meeting in Tokyo on April 11 that Unisys earnings for the quarter ending March 31 will be at least 70 cents per share, and revenue growth should accelerate in the second half of the year. Blumenthal spoke at the opening of Nihon Unisys Ltd., which finally emerged from the shells of former Burroughs and Univac subsidiaries April 1, after protected negotiations. The new company has revenues of \$2.1 billion and 8,000 employees, making it the fifth-largest computer outfit in Japan.

Meanwhile, Unisys announced it would buy Convergent's Intel-based Unix product line, giving Convergent a boost, and endorsed AT&T's "Open Look" user interface for Unix. Those moves, combined with other Unisys moves in the Unix area, indicate the company will eventually standardize on AT&T's Unix System V as the operating systems of its old Sperry and Burroughs mainframes merge.

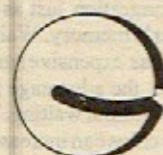
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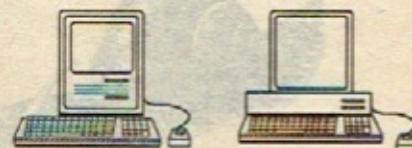
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AT Computer Buyer's Guide

The following article is an excerpt from a new book by Edwin Rusch called *IBM AT Clone Buyer's Guide and Handbook*. It is published by Modular Information Systems 431 Ashbury Street San Francisco, CA 94117 (415) 552-9070 © 1988 by Edwin Rusch. This article is published with the authorization of the author. As you will see from the portions contained here, the book is very well written, comprehensive and actually fun to read. It should be in the stores very soon, if you can't wait, you can order it by mail directly from the publisher.

Evaluating the 286-Based Computer

Computers that are using the 286 microprocessor are becoming increasingly popular and sales of these computers are growing at a rapid rate. There are many good reasons why these computers are gradually becoming the predominant type of computer on the market.

Advantages of the 286

It is important to remember that the 286 computer will continue to grow in capabilities. With the OS/2 operating system, it will be able to use large amounts of memory, which will allow for the use of more powerful and easier-to-use software. The average 286 computer operates at least two to three times faster than a 8088-based computer. This means that tasks can be done significantly faster. Prices are also dropping rapidly, thereby making them an ever more attractive option for the computer user.

There are many software programs and tasks which require, at least, a 286 computer to operate effectively. These include: OS/2; fast and complicated graphics (such as Desktop Publishing, Computer Aided Design, and Computer Aided Engineering); large databases; complex spreadsheets; multitasking; and multi-user situations. The 286 is therefore suitable for a wide variety of applications and with it you will be prepared for most future computing needs you may have.

Disadvantages of the 286

While the 286 computers have many advantages, these computers are no longer the cutting edge. This generation of computer will in time slowly be eclipsed by its successor the 386 computer, which offers the promise of much greater features and capabilities.

Again, there is no need to worry about being left behind technologically with a 286 computer because it is possible to upgrade it to the next generation of computer very easily. At present, most 386-based computers are merely AT clones with 386 motherboards installed. All parts in the AT are usable with the typical 386 computer so to upgrade can mean only replacing one part - the motherboard. I'll have instructions for doing the upgrade in the forthcoming 386 COMPUTER BUYER'S GUIDE AND HANDBOOK.

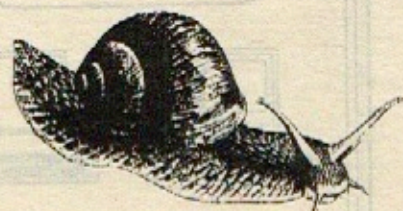
Comparing the Technical Capabilities of the 8088, 286, and 386

Speed Capabilities

A faster computer can reduce the time you wait (while some task is being performed) from a few minutes to a fraction of a minute. Essentially, there are four factors which determine a computer's overall speed. These factors are as follows:

- "clock rate"
- "width" of data path
- overall efficiency of the microprocessor's design
- number of "wait states"

Before displaying a graphic comparison of the speed at which different generations of computers can operate, each of these factors will be briefly examined.



Clock Rate

Inside the computer, a clock "ticks" at a constant rate. It is analogous to a metronome pacing the tempo of a piece of music. In the computer's case, the clock serves to pace the flow of data and thereby assists in keeping order among all the circuitry. The faster the clock, the faster data can be processed. The clock rate is measured in megahertz (MHz) or "millions of cycles per second", the higher the number of megahertz, the faster the speed. Each higher generation of computer can support a faster clock rate due to improved technology. There are also variations in the clock rate within each generation of CPU.

Data Path

The data path in a computer can be likened to a freeway; the more lanes, the more traffic that can be carried. The wider the data path, the more information that can be manipulated.

- 8088 computers have a 8-bit data path (8 lanes)
- 8086 computers have a 16-bit data path (16 lanes)
- 80286 computers have a 16-bit data path (16 lanes)

- 80386 computers have a 32-bit data path (32 lanes)

The majority of software now available has been written for 16-bit. Since the 8088 computers have only an 8-bit data path, the flow of data is reduced by about half. When 32-bit software becomes available for 386 computers, the processing speed will automatically be increased from two to four times, depending on the type of software. This extra speed is made possible by the larger data path.

Efficiency of Design

A degree of speed is gained in each new generation of computers merely due to improved efficiency of circuitry and overall design. Because the layout of the circuitry on the CPU is more efficient, the computer can process more data in less time. For this reason, the 286 chip is 2.5 times faster than the 8088 merely due to a better design. This means that a 8 MHz 286 is automatically 2.5 times faster than a 8 MHz 8088 chip. However, no difference in efficiency of design exists between the speed of 16 MHz 286 and a 16 MHz 386 chip, provided they are using the same 16-bit software.

Wait States

Wait states are placed between the CPU and RAM in an effort to slow down the transmission of data. They function similarly to pacing lights installed before a bridge or freeway - the lights turn on and off in an effort to regulate the flow of traffic. This process helps reduce traffic congestion just as the wait state reduces congestion in the computer's memory. Wait states were devised to allow slower (and thereby less expensive) memory chips to be used. When there is no wait state, the advantage is that data flows directly to and from the memory without waiting. The lack of wait states and the use of faster memory chips can increase the computer's speed by about 30%. The following table compares the speed of 286 computers, both with and without wait states using the Landmark Speed Test program.

CPU Clock Rate (in MHz)	1 Wait State (in MHz)	0 Wait State (in MHz)
6	6	8
8	8	10
10	10	13
12	12	16
16	16	20

There are actually several scales for measuring the speed of computers. The most accurate measures how many Millions of Instructions can be processed Per Second. This is referred to as MIPS. This measurement is used on all computers from mainframes down to microcomputers. However, the more common speed ratings you will see in advertisements are the Norton SI and the Landmark Speed Test. The Landmark test is often used because it displays a nice graphic representation of speed in Megahertz relative to the AT. (The Landmark version 0.99 is a public domain program and is available by sending in the appropriate coupon that is in the back of this book).

Memory Capabilities

The term "memory" describes different forms of storing information. The two forms compared here are random access memory (RAM) and virtual memory.

Random-Access Memory (RAM)

RAM comprises the computer's main memory and is used for the temporary storage of data in memory chips.

With more RAM available, larger and increasingly complex software can be used. An example of how the quantity of RAM can affect your actual computing would be to consider CP/M-based computers which can access only 64 K of RAM. This just barely allows the use of a word processing program. However, 64 K of RAM is not sufficient to allow the use of a spelling checker or a thesaurus. The 640 K memory in 8088-based computers opened the door for these time-saving programs. It also allowed the development of desktop publishing software. When the new OS/2 operating system makes available the full 16 Megabytes of RAM for the 286, it will be possible to merge desktop publishing programs with especially powerful word processing programs. Actual word definitions, which can be rapidly accessed, will also be incorporated into memory-resident dictionary and thesaurus programs. What the 4 gigabytes of the 386-based computer will be used for is anybody's guess. Perhaps there will be some wild artificial intelligence programs which directly translate human thoughts into perfect, informative, and interesting text. That could be of enormous use to poor laboring writers.

Virtual Memory

As previously mentioned, a software program is dependent on the amount of RAM available. Greater amounts of RAM allow for larger and more sophisticated programs to be operated. Virtual memory (simplistically speaking) is a technique in which the computer accesses other memory, such as that on a hard drive and treats it as RAM. Large programs are therefore not limited to the availability of random access memory. This technique is new for microcomputers, although it has been employed for years in large mainframe computers.

Initially, virtual memory will not be of significance to the average user. The first uses will be for large and complex multitasking and

multiuser applications. It will, however, eventually open the door to new types of artificial intelligence programs that offer far better human interfaces than does present software. For a program to operate with minimum effort from the user's point of view, it needs to access large amounts of data rapidly. An example might be a voice recognition program which needs to understand many spoken words in a wide variety of circumstances.

Multiuser Capabilities

Multiuser simply means that you have two or more computers connected together which share information and/or peripherals. Generally, several computers are connected to one central computer (called a file server) which has a large and fast hard drive. The information contained in the file server is then shared among all the other computers or terminals. Special software and hardware are required to connect computers together. As of today, however, there is no industry standard for connecting computers, resulting in much confusion for potential users.

The 8088-based computer is ill-at-ease with multiple users and for all practical purposes cannot act as a file server. The 286 and 386-based computers, due to their superior design, are a prime choice for use as file servers.

The number of terminals which can be connected to a 286 or 386 computer depends on the size and complexity of the software being used. While the number can vary greatly, generally speaking, approximately 10 terminals can be connected to a 286-based computer and up to 60 terminals to the 386-based computer.

Modes

Each generation of computer has the capability of supporting different "modes" of operation. These modes are referred to as "real mode", "protected mode", and "virtual 8086 mode".

Real Mode

The 8088/86-based computer can operate in just one mode; this is referred to as real mode. In real mode the computer can access 640 K of physical memory. MS-DOS exploits real mode, and the overwhelming majority of application software is written for this mode.

Protected Mode

The 286-based computer can operate in real mode as well as in an added mode of operation called 286 protected mode. This protected mode allows for the access of 16 Megabytes of physical memory and 1 gigabyte of virtual memory. It also allows the ability to do multitasking more efficiently. When doing multitasking, the individual tasks are protected from each other so that if one locks up, it does not effect the other programs, hence the name "protected" mode. (When doing multitasking in real mode, if one program locks up, the entire computer would lock up, causing you to lose all your work.) Presently the problem with protected mode, is that all existing software must be rewritten to take advantage of it. Microsoft's OS/2 has been designed to take advantage of the protected mode, however, few applications programs are yet available.

Virtual 8086 Mode

The 386 computer can operate in real mode and in an enhanced 386 protected mode which allows the access of 4 gigabytes of physical memory and 64 terabytes of virtual memory. The 386 also supports one added mode called virtual 8086 mode. Under this mode, you can create many independently operating "virtual 8086 machines" on your one computer. In other words you can set up separate virtual (or imaginary) computers each working within a different window on the same computer. You can then load an array of programs written for the 8088 computer into each virtual machine and switch from one program to the other. The advantage of virtual 86 mode is that all previous software can be operated and you can also do efficient multitasking. Windows 386 by Microsoft is a program which takes advantage of virtual mode and allows the creation of multiple virtual machines.

At this point, you have probably decided that one of the 286-based computers is the appropriate machine for your needs. There are, however, so many of these particular computers available that the buyer often feels a bit confused and overwhelmed by all the choices. Every day another company offers a new computer on the market. What's the difference? Are they all alike? The purpose of this chapter is to begin sorting out the different 286's which are available.

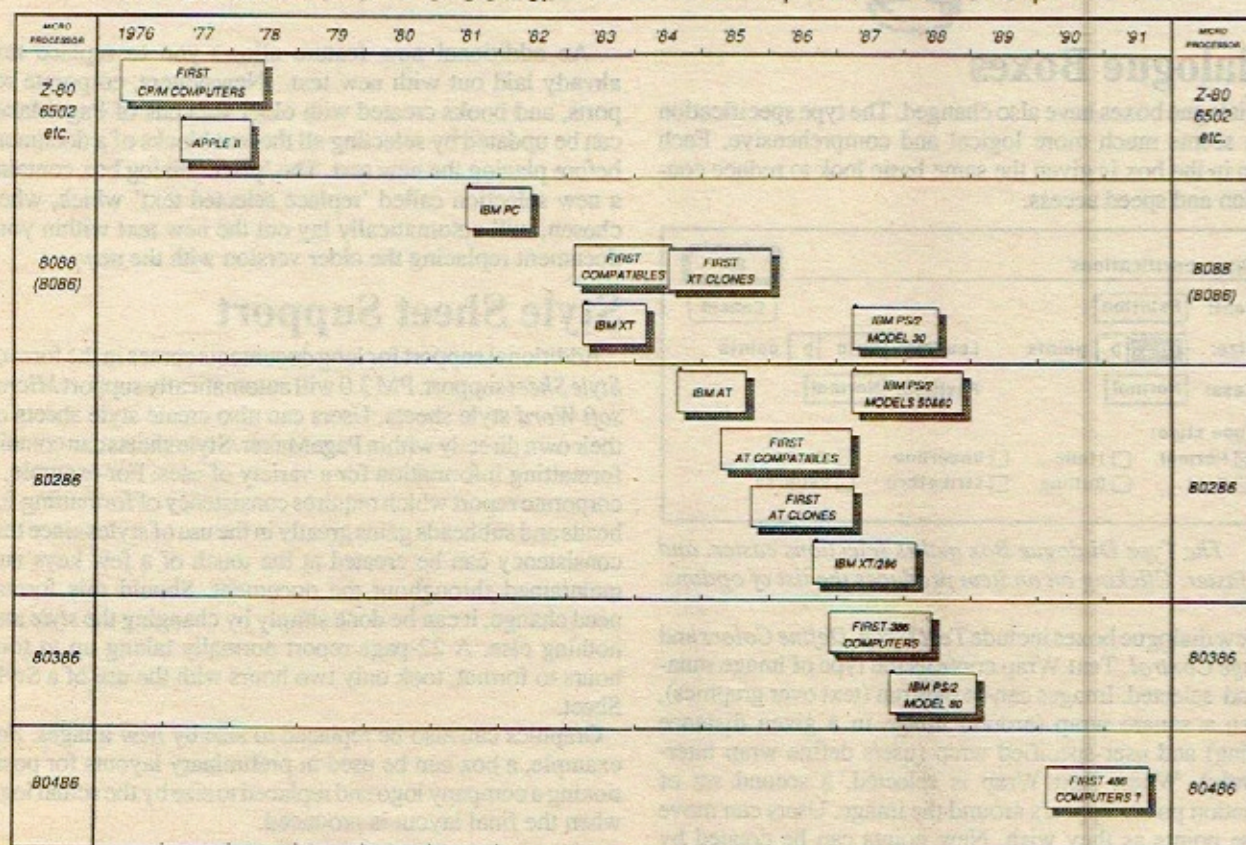
First, it should be mentioned that all the 286-based computers are the same, to the extent that they all have IBM software compatibility. One major area, however, where they differ is in their physical design. The best way to start therefore, is to arrange the computers according to their similar physical characteristics. Using this as the criteria, 286-based computers can be divided into seven general groups or categories. These seven categories are as follows:

IBM AT This is the original 286 computer which became the industry standard for its generation.

IBM XT/286 This computer has the same dimensions as the IBM XT. Every part of an XT/286 (except the keyboard) is interchangeable with an XT and vice versa.

IBM Personal System/2 Models 50 and 60 These new IBM 286-based computers depart from the previous standard set by the IBM

Timeline of the Personal Computers Development



AT. Almost no parts of the PS/2 Model 50 and 60 are physically compatible with any of the previously designed computers.

AT Compatibles This group deserves to be divided into two further subcategories:

The first group consists of computers which use custom designed motherboards, power supplies, chassis, etc. and are, therefore, not totally hardware interchangeable with the IBM AT.

The second group is referred to as passive backplane or sometimes as "motherboardless" computers. These compatibles use a modular concept and place the chips (which are typically on the motherboard) onto an expansion card that plugs into a series of expansion slots.

IBM AT Clones These computers are hardware interchangeable with the IBM AT. In effect, every part of the IBM AT clone can be installed into a IBM AT and vice versa.

Baby AT's These computers are hardware interchangeable with the IBM XZT286. Every part of the IBM XT286 can be installed into a Baby AT and vice versa.

Laptops (or portables) These computers have a small custom design, allowing them to be portable. This group is a vast topic in itself and is as a result not covered in this book.

Evaluating the Categories

In making your decision about which category is best for your needs, it is helpful to consider the issues having to do with the purchase of a computer.

Compatibility

Compatibility refers to the ability of software and hardware to function together in a harmonious fashion without any awkwardness or problems. There are several types of compatibility, they are as follows:

Software Compatibility

The IBM AT is the benchmark against which compatibility is measured. The IBM AT was (as has already been stated) designed using parts which are readily available from many sources. An electrical engineer can purchase these parts and design a computer like the IBM AT. The one part IBM has a copyright on is a set of two chips called the "BIOS" (Basic Input/Output System). The code written in the BIOS is the essence of compatibility. In order for software to function properly, it has to find certain instruction in the BIOS, if there is a conflict, the software will not operate correctly..

Hardware Compatibility

Hardware compatibility refers to the ability of add-on parts to work with the computer. Some expansion cards, especially EGA and memory cards, conflict with the BIOS of some computers. When this occurs, the best solution is to try a different set of BIOS or use a different card.. Hardware manufacturers generally wish to sell their products to as many people as possible, they therefore try to design their products to function with the broadest range of computers available.

Performance

Performance essentially means how much work can be done in a

given amount of time. This is primarily determined by the speed of the computer.

To survive, the clone and compatible manufacturers, as a general rule, have had to offer better performance than there has been with IBM computers. As a result, clone and compatible makers have typically been out in front with new technology. When the IBM AT was running at 6 MHz, the clones and the compatibles were running at 8 and even 10 MHz. When the IBM AT moved up to 8 MHz, the competition moved up to 12 and 14 Mhz.

If you are contemplating the purchase of a 286-based computer, you are probably doing it because you want a fast machine. For that reason, it does not make sense to purchase a slow 286 computer. At this point in time, 10 or 12 MHz computers with 0 wait state are the best price/performance 286's available. For most people it doesn't make a lot of sense to consider anything slower.

Price

For most buyers, the key issue is price. For the individual who is using his or her own money, this is a primary concern. For individuals who are using a company's or institution's money, it is often not as relevant a factor.

Again, in order to survive, every other computer manufacturer must have a lower price and greater capabilities than the IBM counterpart. The compatible makers generally price their computers just under IBM's while the AT clones typically come next in price. The Baby AT clones are the lowest-priced 286 now available.

Computers depreciate quickly and for this reason, it is not advisable to buy the most expensive computer available. Computer technology is changing so fast that in a couple of years, your wants and processing needs will likely outgrow your present computer, no matter which one you buy. The high performance computer of today will be "old hat" tomorrow and the resale value will likely be very low. You don't want to invest sizable amounts of money for a machine which may become obsolete after a few short years. It is better to shop for something inexpensive, taking advantage of the low price, while meeting your present application needs.



"Hey buddy, how much did you pay for your computer?"

Reliability

Generally speaking, reliability has replaced compatibility as the primary issue. Reliability has to do with how trouble free your computer is. You don't want to purchase a computer that is prone to failure and needs to be taken back to the dealer or manufacturer for repairs. The variable that determines whether a computer is reliable or not is the quality of the individual parts.

Even the IBMAT and XT286 have had their share of problems and for that reason, rate the same as clones and compatibles. My standards may be a little harsh in this respect, but I have seen far too many problems with all types of computers.

IBM claims the PS/2 series has the greater reliability than any previous computers. Unlike its predecessors, which were designed using already available computer chips, the PS/2 series is completely designed and controlled by IBM. All the chips are custom designed to work together. The design requires no cables (often a source of problems) and no dip switches to be set (again a common problem area). The chips use the latest technology and have a lower power consumption resulting in less heat (heat can wear out components). Since there has not been enough of these computers in the field, it is still too early to verify IBM's claim of greater reliability.

The reliability for compatibles and clones varies a great deal, from very poor to fair, because there are so many different manufacturers and parts available. The wide variety of available parts means that, of course, there are some low-grade computer parts on the market. This guide is especially designed to assist you in getting the best value and parts for your money.

Availability of Support

Good support means that information and service are readily available. In other words, when you need help with the computer, there should be a ready source for the help. The type of support you may need would include how to set configuration switches, connect a printer, expand the computer, format the hard drive, etc. When buying a computer system, it must be remembered that hardware support is different from software support. If software is purchased separately from the hardware, it is the responsibility of the software vendor to support what he sells.

Potential for Interchanging Parts

It is important to purchase a computer for which replacement parts are readily available. This availability affects the ability to successfully carry out such tasks as expansion, upgrading, and repairs of the computer. A big advantage of the AT clones is that all parts are interchangeable with the IBM AT. This means that parts are readily available and will continue to be available due to the huge installed base of these computers.

Expansion Capabilities

The computer field is changing very rapidly. New features are being developed all the time. For this reason, your computer should have ample room for expansion so that it can incorporate new features as they become available. Nothing is more frustrating than wanting to expand the computer only to find that it has reached its upper expansion limits.

Upgrade Path Potential

The upgrade path refers to a computer's capacity to be upgraded from one generation of computer to the next generation; for example, an 8088 to a 286, or a 286 to a 386 computer, or even a 8088 to a 386. Having this option is one of the best solutions to avoiding computer obsolescence. It is, for example, possible to upgrade an XT computer to a Baby AT by changing the motherboard. This option is only readily available for computers which are true hardware clones of the IBM XT. The reason for this is that the installed base of the XT and its clones is so large that it is economically attractive for manufacturers to design 286-based motherboards that will fit into an XT chassis.

Potential of Custom Designing Your Computer

Many people want a computer that suits a specific application or need. They want the total flexibility to specify each individual part which makes up the computer. In other words, they want a total custom fit.

Availability of Computer Repair

Computer repair is for some people a fearful topic. For a business or a professional, a computer failure can be a nightmare because important data and time can be lost. An entire business could actually come to a halt. It is, therefore, important to know how easily, quickly, and inexpensively the computer can be repaired.

Summary

While each category of computer has its merits, it appears that the AT clone and the Baby AT clone are about the best buys available when price, performance, upgradability, and interchangeability of parts are considered.



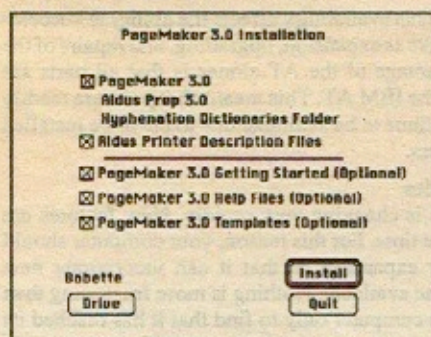
Aldus PageMaker

A First Look by Nelson Ruest

I've been desktop publishing for years. My first efforts began with *ReadySetGo!* 1.0 in 1985 with some newsletters. I later moved on to *PageMaker* 1.0. Basically, I've had the opportunity to see these and other programs evolve over the past few years. *ReadySetGo!* 4.0 is considerably more powerful today than was its precursor. But *PageMaker* 2.0, though it had some necessary enhancements, remained much the same as 1.2, attesting to the sound design of the original program. With new programs such as *Quark's XPress* entering the market, *PageMaker* was starting to lag behind. Many users felt that *Aldus* had to drastically improve their program. Thus, it was with trepidation that I installed the brand new shrink wrapped *PageMaker* Version 3.0 on my SE20, visions of style sheets and auto text flow dancing through my mind.

Program Installation

The total file size of the 3.0 program is 890k, making it impossible to fit on one disk. To solve the problem, *Aldus* distributes the program on two disks. A new installation program copies both parts to your hard disk and combines them into one. It also automatically installs *Tutorials*, *Getting Started*, *Templates*, and *ADP* files (21 in total—PM does not allow you to select which *ADP* files you require. Most users only need 3 or 4 on their system at one time.) When all options are selected, the program requires 3,744,768 bytes of a hard disk. Users should make room for it before beginning installation.

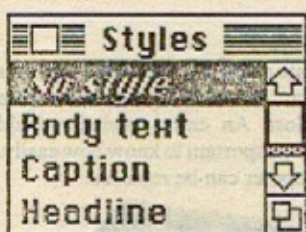


The Installation Dialogue Box lets you choose exactly what you want to install on your system. *Getting Started*, *Tutorials* and *Templates* are all optional.

New Menus

Perhaps *PageMaker*'s biggest change is its new look. Menus are less cumbersome and include several additional features. *PageMaker* 3.0 uses the recently introduced hierarchical menu system. Hierarchical menus call upon additional menus in order to store more information without cluttering the menu bar with selections. They provide faster access to the most frequently used items and increase users' capacity for production.

The two menus which have changed the most are *Type* and *Options*. *Type* now has 11 selections, 6 of which call hierarchical menus. *Leading* control is available directly from the menu, *Reverse* is now where it should be with *Type*



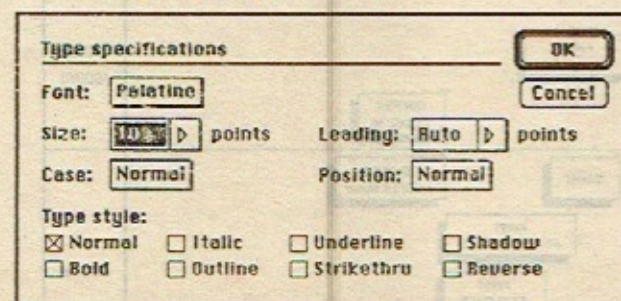
Styles and *Define Styles* calls the style control dialogue box.

The *Options* Menu is the longest. It holds 16 selections, many of them new. *Snap to Ruler* finally gives *PageMaker* a grid lock. *Style* and *Color Palette* let you call new tool box menus for easy access.

Additional palettes give you quick control over text formatting and colour selection.

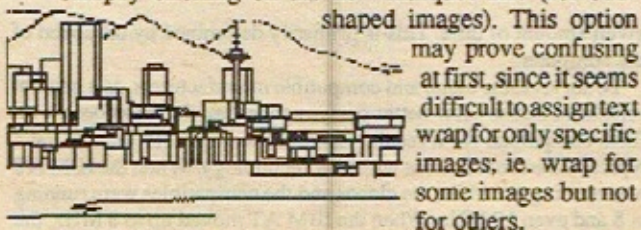
Dialogue Boxes

Dialogue boxes have also changed. The type specification box seems much more logical and comprehensive. Each item in the box is given the same basic look to reduce confusion and speed access.



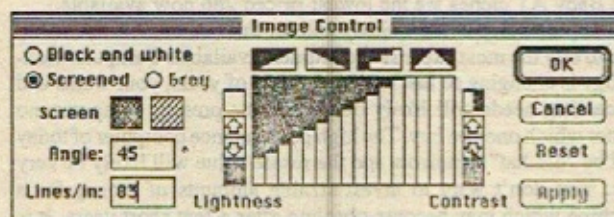
The Type Dialogue Box makes selections easier, and faster. Clicking on an item produces the list of options.

New dialogue boxes include *Text Wrap*, *Define Colors* and *Image Control*. *Text Wrap* controls the type of image run-around selected. Images can be overrun (text over graphics), given a square wrap (around image in a given distance setting) and user-specified wrap (users define wrap interactively). When *Text Wrap* is selected, a second set of selection points appears around the image. Users can move these points as they wish. New points can be created by simply clicking on the new marquee line (for odd-shaped images). This option



may prove confusing at first, since it seems difficult to assign text wrap for only specific images; ie. wrap for some images but not for others. *Define Colors* lets users select spot colours for their layout. (Unfortunately, using a black & white SE makes this more difficult.) Colours can be assigned to text and images through the *Color Palette*. This spot colour feature allows you to print directly to a printer which supports colour or to automatically create colour separations for conventional printing methods. Colours can be defined by users to create their own or to use PMS colour coding.

Image Control is a new feature which allows for screening of paint and TIFF images directly within PM 3.0. It also lets you define the brightness and contrast levels of an image. Selections include automatic posterization (mapping image in fewer grey tones for more contrast), automatic reversal of grey tones (turn image background from white to black) and



grey mapping equalization. The image control tool allows for dramatic effects even when using only paint images. The scanned image used for the title of this article was manipulated with the image control features.

Auto Text Flow

PM users have long desired better text management tools within the program. This long awaited feature is now available by either turning it on in the *Options* menu or simply pressing the command key while flowing text. The loaded cursor icon changes from the commonly known text icon to a text wrap icon, displaying the fact that your text will now flow across columns and across pages if so desired. It will also create new pages (based on the master page format) as required to fit the amount of text used. This auto text flow can be stopped at any time by clicking once with the mouse.

An additional new feature allows you to replace text already laid out with new text. Newsletters, corporate reports, and books created with older versions of *PageMaker* can be updated by selecting all the text blocks of a document before placing the new text. The 'place' dialog box contains a new selection called 'replace selected text' which, when chosen, will automatically lay out the new text within your document replacing the older version with the new.

Style Sheet Support

Additional support for long documents comes in the form of *Style Sheet* support. PM 3.0 will automatically support *Microsoft Word* style sheets. Users can also create style sheets of their own directly within *PageMaker*. Style sheets can contain formatting information for a variety of uses. For example, a corporate report which requires consistency of formatting for heads and subheads gains greatly in the use of styles since this consistency can be created at the touch of a few keys and maintained throughout the document. Should this format need change, it can be done simply by changing the style and nothing else. A 22-page report normally taking up to four hours to format, took only two hours with the use of a *Style Sheet*.

Graphics can also be replaced to size by new images. For example, a box can be used in preliminary layouts for positioning a company logo and replaced to size by the actual logo when the final layout is produced.

Enhanced Interface

PM 3.0 is a more complex program than it has been to date. Interface novelties include the ability to set different measurements for the horizontal and vertical ruler units and optional grepping (for full page display support). One of PM 3.0's nicest new features is *Snap to rulers*. This really helps when trying to line up items inside a grid design.

Built-in Templates & Guidance

Previous versions of PM came with tutorial files for training purposes. Users were encouraged to buy *PageMaker* templates to complement their layout tool. This version goes one step beyond that. It comes complete with 20 design templates including proposals, slides, newsletters, and business communications. While these templates may not be exactly what a user wants to duplicate, their presence will allow most to save time when creating new formats. Guidance is also very refined. New users can use *Getting Started* to learn their program with very little reference to the manuals.

Conclusion

Sadly enough, *PageMaker* 3.0 does not include new typographic controls such as those which have made *XPress* famous. While the 'spacing' dialog box has changed, its purpose remains the same, control over space widths within lines. This new spacing option now works with any type alignment. *Aldus* suggests to use *FreeHand* to create text effects and import them as graphics within *PageMaker*. This two-program combination can prove most effective. *PageMaker* 3.0 is on the shelf now. The PC version is slated for release later this year.

Other sadly missed features include a Find command or *Xpress* style Search and Replace capabilities, or a way to have boxes placed within text flow with the text (even support for Word's ability to do this would make things easier.)

Fortunately, what it does do, it does very well. *PageMaker* 3.0 not only looks good, it feels good to use. Most of this feeling comes from the new menu structure. Though I like to use whichever layout program best suits the job at hand, I think I'm going to stick with *PageMaker* 3.0 for a while. It's going to be hard to find a job this program can't handle.

Nelson Ruest is an independent Desktop Publishing consultant. His publishing experience spans several years and includes operation of both Macintosh and PC layout programs. He can be reached through RESOLUTIONS at 683-1599.

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SHAREWARE SHEET

Over the past few years I've tried several thousand P.D. files, some quite good and others pure trash, but the most intriguing were the U.F.O.s (Unidentified File Objects) which I could never get to run. This overview of Macintosh PD is intended to help you reduce the number of U.F.O.s, by providing answers to the most commonly asked questions from new and seasoned PD users.

ICONS

Icons provide a pictorial representation of a document or application and often provide a clue of the intent or purpose of the file. These small clues can be very valuable in determining the use of a new file, the creating application of a document and differentiating various files.

Often documents which are obtained through PD libraries will be represented by a blank or generic icon. When a file is loaded onto your Desktop, identifiers known as the "Type" and "Creator", are checked and their icons are stored in an invisible file (called the Desktop file). Files which do not have a resident icon and can not find the correct icon in the Desktop file are provided with a generic icon.

TEMPLATES

Templates became quite popular following the release of the Microsoft spreadsheet, Excel. Spreadsheet authors created series of spreadsheets for doing accounting, managing stock portfolios and completing income tax returns. These documents were available with all the formulas created, macros written and multiple sheet links established so all the user had to do was input their particular financial data. Finding a template, already constructed to deal with a given task can save you many hours of work and often provide you with a creative approach beyond your current ability.

Templates are also available for many other spreadsheets, databases and form letters. They are blank outlines which only require the raw data to be input.

SUPPORTING APPLICATIONS

Some files provided in a PD Library will require that you have a copy of an application to open and run the document. When you try to launch the file you are given an alert message advising you that the application is busy or missing. Some libraries will provide you with information about which applications are required and experienced users can often determine what the applications are by the document's icon and/or its "Type" and "Creator". If this information is not provided and you can not determine what supporting applications are required after trying the file in conjunction with your various applications, call an experienced PD Librarian for assistance or take a copy of the file to your next user group meeting.

DOCUMENTATION

Documentation or Docs, the common abbreviation, are sometimes provided in the form of a separate word processing document or may be found on-screen, while operating the application. The only thing more frustrating than trying to operate a complicated new file without documentation is trying to run the file with documentation that can't be read by any of your word processing applications.

Many authors provide documentation in the form of a text file, which can be read by any word or text processor. When graphics are required in the documentation a word processor, such as MacWrite or MS Word, is commonly used. Some libraries will convert most of the documentation to text or MacWrite formats as these are the two most widely accessible.

Documentation files which will not launch directly from the desktop, with your word processor, can often be converted if opened with the program's File/Open command. Opening your word processor and try using the "Open" command, under the "File" menu, to open the document. Another trick is to use a page layout application to read files created by a word processing application which you do not have.

FONT

Fonts are the various letter families which can be installed in your system file with Apple's Font/DA Mover.

There are two general types of fonts, bitmapped and laser fonts. Most fonts available in the public domain (at present) are of the bitmap type, intended for use primarily on a dot matrix printer like the ImageWriter or ImageWriter II.

Font files contain fonts of various sizes and your computer can manipulate these sizes into many additional sizes and styles. In order for your dot matrix printer to produce an adequate quality print job, you must install the appropriate font sizes.

For medium quality print you must have the font point size installed, in your system file, that you have formatted your text in. To print in the highest quality you must have a font size double the formatted size installed.

INIT

Init's are resource programs which are automatically installed or "INITIALIZED" when your Mac is started up. This program format is often used for small programs which you'll want loaded each time you use your computer, such as screen savers, print spoolers, etc.

To install an INIT, place it in the System Folder of your startup disk. It will load automatically the next time you turn your computer on with that startup disk. Removal is as easy as dragging it out of the System Folder and restarting your Mac.

CDEV

Cdevs are "Control DEVICES" for system file version 4.1 or later and can be selected from the control panel's scrolling menu. To install, place them in your System Folder and restart your Mac. They can be removed by reversing this process.

Cdevs are becoming quite popular as a way of providing operational utility files which the user will want available at all times and are particularly useful when used with the large available space of a hard disk drive. Their uses cover a vast spectrum from the Apple supplied Cdev "Mouse", for controlling your Mouse preferences, to ones like "The GuardDog", for controlling access and movement of files and their location on your disk.

FKEY

FKeys, or function keys, are programs which can be added to your system file with an application such as FKey Mover. These files are stored in your system file and can be called upon by holding down a specified series of keys. Some of these come pre-installed in all Macs, i.e. (command-shift-1) will eject the disk from your internal disk drive.

DA

DAs or desk accessories are the programs available under your Apple menu. There are hundreds of useful DAs available covering almost every subject area. Installation is generally accomplished by using the Font/DA Mover application supplied by Apple Computer Inc..

If you haven't learned how to install and remove desk accessories you are denying yourself one of the truly great powers of the Macintosh.

StartupScreen

Are you tired of seeing the standard "Welcome to Macintosh" opening screen, each time you start your Mac? There are a large number of StartupScreens available in the Public Domain, which can be used to add personality to your startup sequence. All you have to do to install them is make sure that they are named "StartupScreen" and place the file in the System Folder of your startup disk.

Better Safe Than Sorry

I recommend that you do not operate any public domain or shareware files on your hard disk drive until you have used them on floppies for some time and are sure that they are secure.

Register Those Shareware Programs

Enjoy the vast array of software, available in the PD Library of your choice, but remember to register copies of Shareware which you retain & use.

Ron Haidenger of Plus Computer, a Surrey computer company which specializes in Shareware and Public Domain Software for the Macintosh. He can be reached at 574-3813

LANs

LAN's - What is available? How do they work? How to Choose?

In the last article, we briefly reviewed the history of micro-computer based LAN's, and the inexpensive "Zero-Slot" arrangement. With that background in mind, let's examine how a LAN in 1988 might look, and take a peek "under the hood" to see how they work.

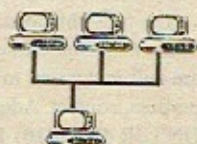
CABLING - the primary link.

Each and every workstation on the LAN must be connected to the server. Each workstation and server must have a communications card, called a "Network Interface Card" ("NIC") which is connected to the cabling system, and all NIC's on the same cable must use the same language (called a "protocol") to talk to each other. All of the protocols use some method of transmitting data in relatively small "packets".

There are various methods of cabling, called "topologies", of which the most common are Linear Bus, Star, and Ring.

LINEAR BUS

In a Linear Bus topology, a single cable (the "bus") is connected to each workstation and the server(s). Each end of the cable must be terminated with the CORRECT type of resistor to properly complete the electrical circuit. Co-axial cable (like cable TV wire) is typically used, but different types of co-axial cable and terminating resistors are required for different types of NIC cards.



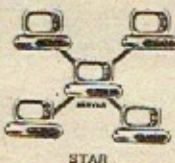
Since all stations on the net share the same cable, they "see" all packets, but only receive packets addressed to them. Some method of preventing two or more stations talking simultaneously (causing a "collision") is required. Collision Avoidance (CA) involves first listening to see if another station is currently transmitting on the cable. If so, then the NIC simply waits until the cable is free. Once a NIC begins transmitting a packet, it also may listen to see if another NIC began transmitting at the same time - called Collision Detection (CD). If so, then BOTH NICs stop transmitting for a random time interval, then start the entire process again.

All this activity takes place at electronic speeds, under control of the NIC's. On a VERY BUSY net it is possible that a station may never get access to the cable for a period of time, in which case it will inform the station operator and await a Retry/Cancel command. If this happened often, the network can be split into two segments, each with its own "bus" cable. Novell can accommodate up to four NIC cards in the same server.

A fault anywhere in the cable will prevent network operation. Individual cable lengths are generally limited to 1000 to 3000 feet depending on the protocol, but "repeaters" may be used to re-transmit packets over longer distances. Installation costs for the co-axial cable can be quite high for larger nets, where an existing building must be re-wired. Ethernet, G-Net, PC-net protocols all use the Linear Bus Topology.

STAR

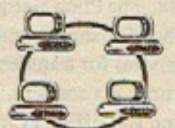
Each workstation in a Star topology has its own individual cable connecting it to the server. Since the cable is dedicated to the workstation, no collisions occur. Maximum transmission speed requirements on any one cable are much lower than with a shared cable, so twisted pair (like telephone wire) is generally used.



With no collisions, response is always excellent. A fault in a cable affects only the station attached to it, the remaining stations are still active, and the problem is easier to diagnose. NIC cards in the server cost more since they typically manage several stations. Although twisted pair is less expensive than co-axial cable, you need more of it since each station must have its own cable all the way back to the server. However, you may be able to use existing telephone wiring in newer buildings, in which case installation costs would be reduced. Maximum cable lengths are usually in the 100's of feet.

RING

As the name implies, a Ring Topology is cabled in a circle. An electronic "token" is passed from station to station in sequence. Each station examines the token, and if they receive permission, may use it to send a packet.



Think of the token as an electronic envelope which arrives empty at your station. Your packet is placed in the envelope, the address of the receiving station applied, and the envelope passed on to the next station on the ring. Each subsequent station "sees" the envelope, but may not use it since it contains a packet. The receiving station "opens" the envelope, retrieves the packet, places an acknowledgement to you inside, attaches your address, and passes it on. Again, other stations see the envelope, but may not use it. You receive the acknowledge packet, then pass on an EMPTY envelope to the next station (even if you have more packets to send), allowing your neighbor and others on the ring access to the cable.

Collisions never occur and every station is guaranteed a fair share of time on the cable. As with Linear Bus, a fault in the cable will

prevent network operation. Each workstation or "wire center" attached to a group of local stations re-transmits the token/packet allowing very long cable lengths. Cable types will vary from expensive, special cables, to twisted pair, according to the distances and NIC's involved. IBM's Token Ring protocol uses this topology.

HYBRID TOPOLOGIES

By combining the strong points of the major topologies, networks with improved performance and/or fault tolerance are possible.

Arcnet is a "Distributed Star" topology, and the most popular of the "hybrids". It looks somewhat like a group of stars in that each station has a single co-axial cable to a "hub", which has a single cable to another hub or a server. Hubs can be passive (like cable TV splitters) or active (the signals are re-transmitted). By linking several active hubs together, total cable lengths in the 1000's of feet are possible. A break in a cable out of an active hub will generally affect only those stations and hubs further out.

In operation, Arcnet acts like a linear bus in that all stations "see" all the packets. A token passing scheme is used to ensure equal access to the network by all connected stations. Active and passive hubs allow easy expansion over long distances. Arcnet is a recognized standard topology/protocol available from a wide variety of manufacturers.

Proton is a popular high performance, fault tolerant hybrid, using a "Star Wired Ring" topology. Workstations are connected to wire centers in a star fashion, except that special cable is used so that there is an ingoing and outgoing PAIR to each station. Similarly wire centers are connected with double pair cable. The topology physically resembles a distributed star, but electronically acts as a ring. Wire centers can also have repeaters attached, allowing very long cable runs. A cable break causes the nearest wire center to automatically disable the faulty cable, isolating the affected part but keeping the rest of the network up and running.

In operation, Proton acts like a Token Ring, except that the "envelope" is large enough to carry several packets, each individually addressed. In one pass around the ring, the token may actually service several workstations, providing improved performance. Fibre optic, infra-red, and microwave transmission is available, allowing unique solutions to special site requirements. Proton is a proprietary protocol.

Other hybrids are available, each with special attractions in the price/performance area. In addition, the desire to use existing building wiring has spurred the development of higher speed, twisted pair based solutions in the Ethernet, Arcnet, and Token Ring topologies.

CABLE SPEEDS

Standard protocols such as Ethernet, Arcnet, Token Ring have raw cable transmission speeds specified as part of their engineering definition. All too often, this raw data rate is incorrectly viewed as the only comparison measurement. Actual data throughput rates are affected by packet overhead (extra data that must be sent with each packet), error correction overhead, collision counts, packet size, network load and other factors.

ALL NIC's NOT ALIKE

In addition to the topology, the NIC's relation to its host computer will affect the data transfer speed. There are three basic ways in which a NIC may transfer data to and from the host, namely shared memory, I/O ports, and DMA channels. An explanation of these is beyond the scope of this article, so relax. Manufacturers may choose whichever they wish, based on cost, complexity, and performance criteria - the protocol standards define how they must talk to the cable, not the host computer.

HOW TO CHOOSE?

Choosing a topology PROPERLY involves calculating the anticipated load on the network for each station, and comparing this to tables generated by benchmark tests on different topologies and servers. A performance reference (such as a stand alone IBM AT with a hard disk) is chosen, and all topology/protocol choices with an equal or better performance for the load are available.

Cabling distances and price now enter the picture. A topology may handle the load, but may cost a bundle to wire your office. Higher performance NIC's also carry a higher price tag. Don't forget the future - networks, like kids, get bigger over time.

For a small net of 4 or fewer stations, doing some accounting, word processing, and spreadsheet work there would be negligible difference between Arcnet, Ethernet, or G-net.

Most important - choose a vendor based on knowledge and ability, not price - you get what you pay for.

In the next issue, I will explore the Novell based server, from the inside out. We'll also look at how to hook several LAN's together, and how to connect to the computer world outside the DOS based LAN.

Mike Wolfe is a partner with Softrak Systems Inc., responsible for the sale, installation, and support of Novell LAN's. He also teaches introduction to LAN's through the Vancouver School Board.

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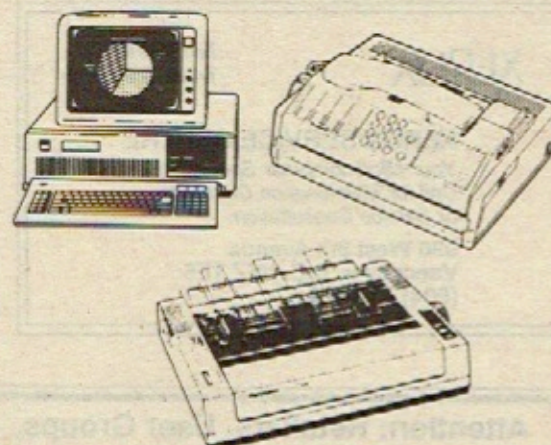
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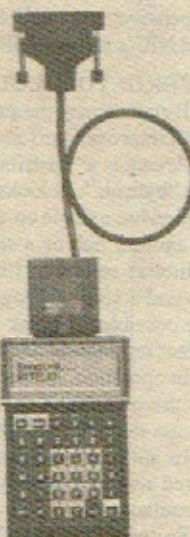
Interactive Hand Held Computer

Responding to the demand for a truly interactive pocket sized computer PSION Corp has introduced the PSION Organizer II. This unique English product, provides up to 256K in a compact hand held format. Built in system functions include database file management, diary appointment planner, scientific calculator and even an internal programming language for creating custom applications. Pre-programmed software on solid state Datapaks further expand the functions of the Organizer. The ability to download Lotus 123 data into the Organizer spreadsheet, to perform mortgage amortizations and high level financial functions, and to gather inventory data through Barcode scanning are just some of the currently available programs.

Communications is the key to the power and adaptability of the Psion computer. The Organizer has the ability to transmit and received data from a deskbound PC via the RS232 port. With the addition of the Psion 2400 baud modem, the Psion II provides remote interactive data transfer to the central office host PC from a portable unit small enough to carry in your pocket or purse.

Remote order entry, data base search, and access to electronic networks and messaging are all available to this Psion portable computer.

The Psion Organizer is distributed through AJ Marketing in Vancouver at (604) 736-7924. Enquiries welcome.



company recently announced a personal computer software program that coordinates with a their popular Time:Text concept. The software complements the paper system. "It helps people handle greater amounts of information, and become more organized thus more effective," says Priority Management Systems President Dan Stamp. For more information, or to reserve a copy of the PC Time:Text Software Contact: Rober Mackwood, Contemporary Communications, 224-2384.

AdaptaAccounts

Accounting Software builds on strengths of Paradox DBMS

A family of advanced relational business applications for Borland's top-rate Paradox 2.0 database management system was released today by Adapta Software Inc. "This layered, modular software approach reduces the cost and efforts for both VAR's and users in adapting systems to handle specific business requirements" says Peter Wolfe, Adapta's President.

The fully relational design of AdaptaAccounts provides transaction and database integrity and a complete audit trail. All modules are full integrated to the GL. For more information on this new product, contact: Adapta Software, 30 Longwater Chase Unionville ON L3R 4A5 (416) 479-2399

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Computer World in Surrey, is pleased to announce that they have been awarded exclusive distribution rights to Video Worx, the ultimate Video rental store Point of Sale software package.

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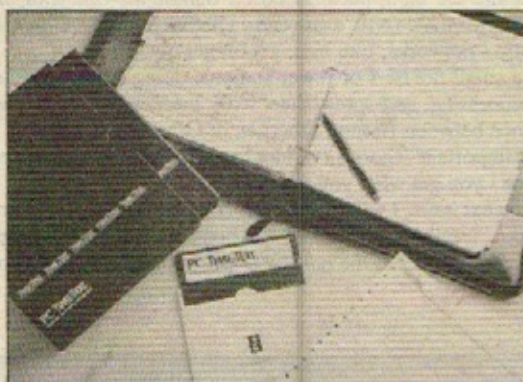
Video Worx comes with over 4000 titles included in the package alleviating the need to enter this information. Video Worx runs on all IBM or IBM Compatible computers with a Macintosh version projected to be ready in July. Video Worx retails for \$395. Dealers inquiries are welcome. Computer World can be reached at 13483 King George Hwy., Surrey V3T 2T8 (604) 583-1600 Contact Walter Allott.

Autofax Imager

VCR Tape Backup System for your PC

Here is a VCR backup system for IBM compatible computers that deserves more than one look. Autofax Corporation announces the introduction of 110 meg Tape Backup System for under \$400 Canadian. Based on an add-in board, software and any home VCR (Beta or VCR), the system has a cost per megabyte of about 6.2¢ versus other systems costing up to 63¢ per megabyte.

Autofax supplies the add-in board, software, cables and manual that completes the Imager package. The user supplies the VCR. The Western Canadian Distributor for Autofax Corporation is compu-care 2255 Georgia St, Richmond BC V7E 2R5 Telephone: 275-4143.



Plato Hardpac™ 20

Portable Hard Drives for PC's

Aristotle Industries is announcing the introduction of a brand new product to the computer marketplace this month. Three years of hard works, design and refinements have resulted in the creation of what is probably the first completely portable hard disk drive for IBM and compatible computer - the Plato Hardpac™ 20. The unit is a self-containing storage centre housing 20 megabytes of memory. The unit requires no special software for use, transfer or storage of important data. Simply plug the unit into a host adapter in your micro computer and information becomes truly portable and easily accessible. The Plato Hardpac™ 20 is about the size of a pocket novel and is therefore small enough to fit in any briefcase or courier envelope. It is ideal for transferring data to and from the office, or when data security is a concern. The interface allows for quick hook-up to both home and office PCs.

The Hardpac™ 20 is also available for the Macintosh computer with a SCSI interface Pricing on both Mac and PC units will be the same.

Aristotle will be demonstrating their Plato Hardpac™ 20 at the Spring Comdex. It will retail for \$785 US with an additional adapter kit available at \$95.

For more information on the drive, call Aristotle Industries, #200-6975 18th Ave Burnaby B.C. or call (604) 522-9880

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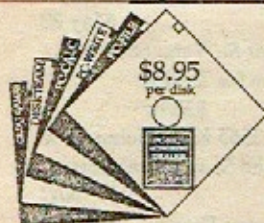
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 DTP PC Pagemaker May 28 5 wks \$300
 BENNDORF VERSTER 380 W 2nd Ave Van. 872-8882 DTP:
 Cannon Express May 4/18 1-4 pm \$25
 DESKTOP PUBLISHING TRAINING CENTRE 400 1190
 Melville St., 681-2535 Call for May Schedule
 Ventura, Pagemaker
 DOPPLER 101 W. 5th, Vancouver 875-0261
 Ventura May 19 & 20 \$375
 Pagemaker May 26 & 27 \$350
 FIALA, BONNER 810-1112 W Pender St. Van., 684-1022
 Ventura 1 day course May 6, May 31 \$250
 MICROAGE 3609 W 16th Ave, Vancouver 222-1010
 Intro to Autocad May 16, 18 \$175
 Autocad May 31 + June 2, 4 \$175
 PBSC 1350-1140 W. Pender St 689-7272 (call for start)
 PC Pagemaker \$195
 Ventura \$195
 PRECEPT 735 Clark Dr, Vancouver, 255-3198
 DTP Ventura May 16/17 8 hours \$190
 Intro to DTP 6 hours May 24/25/26, 30/31 \$130
 Pagemaker May 19/20 8 hours \$190
 PRIMA 207-3900 E Hastings, Burnaby, 294-4567 Ventura
 Introduction May 11, 18 1 day \$180
 Ventura Adv. May 25, June 1 1 day \$180
 SIMON FRASER UNIVERSITY Downtown 687-4255
 Computers and Publishing: Specialized or Single Title
 Publishing Using the New Technology May 6 & 7 \$195
 Desktop Publishing Tools: Alternative Approaches May 13 \$160.
 SIMON FRASER UNIVERSITY
 Engineering Science Seminar Room 4010B SFU 291-3844
 Desktop Presentations May 27 9-5pm \$160
 VANCOUVER ELECTRONIC PUBLISHING ASSOC. BC
 Club, 750 Pacific Blvd S., Vancouver, 731-5887
 Microsoft & Knowledge Navigator video May 2
 Mac SIG Nelson Reust 683-2341 Wed May 11
 VANCOUVER COMMUNITY COLLEGE 875-8200
 Ventura May 16/17 8:30-12:30 pm \$190
 Pagemaker May 19/20 8:30-12:30 pm \$190
 Using Pagemaker May 19 4 wks 7-10 pm \$190
 VANCOUVER DESKTOP PUBLISHING CENTRE Ltd
 1150 Homer St 681-9161 Call for Start Times
 Ventura Junior Level full day \$159
 Ventura Senior Level 2 evenings \$159
 Desktop Design Clinics 1-4 pm \$69
 Ventura Publisher - Call for Dates
 VAN. SOFTWARE CENTRE 300-1190 Melville 669-9800
 Intro to Ventura May 9 & 10 2 day course \$300
 Advanced Ventura May 3 \$180
 Intro to Pagemaker May 24 & 25 2 days \$300
 Advanced Pagemaker May 12, 30 1 day \$180
 VANCOUVER SCHOOL BOARD 736-7241
 Ventura May 18 5 wks 5:30-7:30 or 8-10 pm \$120

Ventura II May 16 5:30-7:30 or 8-10 pm \$120

EXPERT SYSTEMS

MICROAGE 3609 West 16th Ave. Vanc. 222-1010
 Autolisp May 30, 31 \$175
 SIMON FRASER UNIVERSITY Engineering Science Seminar
 Room 4010B SFU 291-3844
 Expert Systems & Shells May 30-31 9-5 \$300

GENERAL INTEREST

Mother's Day May 8
 Victoria Day May 23
 FIALA, BONNER 810-1112 W Pender St. Van., 684-1022
 Parent/Child Day May 7, Price for 2: \$150
 Drop In Time May 14, 28 \$20/hr
 Public Legal Education Society 688-2565 Karen Johnson or
 Joanne Taylor 150-900 Howe St (Smithe St entrance) Topic:
 COMPUTER LAW, May 2 & 19 N/C
 Vancouver Enterprise Forum Discovery Theatre, EXPO Site
 430-3533 Tues May 10 \$12.00 per person
 Robotic Systems International Ltd Buffet 5:30 - 7:00 p.m. in
 Theatre Mezzanine, Forum 7:00
 Vancouver School Board 736-7241
 Computers in the Legal Office.
 5 wks May 18 8-10 pm \$80
 Sales & Marketing with Computers
 May 19 5 wks 5:30-7:30 pm \$80
 Making Money from Mailing Lists
 May 19 5 wks 8-10 pm \$80
 UBC 222-5222
 PERSONAL COMPUTER WEEK May 9-13 9 am -4 pm
 Microcomputer Lab, Old Bookstore \$375

INTEGRATED SOFTWARE

DRAKE Suite 100 - 1111 Melville St., Van. 669-8789
 Symphony SS & Graph May 9,30 \$175
 Symphony Database May 27 \$175
 PBSC 1350-1140 W. Pender St 689-7272 (call for start)
 Symphony level 1, May 13 \$195
 Symphony level 3, May 6 \$195
 VANCOUVER SCHOOL BOARD 736-7241
 Framework II May 17 5 wks 8-10 pm \$120
 VAN. SOFTWARE CENTRE 300-1190 Melville 669-9800
 Intro FRAMEWORK II all day May 12, 16 \$180
 FRAMEWORK II L II.9-5 PM May 10,27 \$180

LOCAL AREA NETWORKS

DRAKE Suite 100 - 1111 Melville St., Van 669-8789
 Novell System Manager 2 days May 5&6 \$415

MACINTOSH

ADVANTAGE COMPUTERS
 685-MACS Suite 1760, 1 Bentall Centre 505 Burrard St.
 Times: A.M. 8:30 - 12:00 a.m.; P.M. 1:00 - 4:30 p.m.
 Intro to Mac May 3 A.M., 19 A.M., 27 A.M. \$80
 Intermed Mac May 6 A.M., 16 A.M., 30 A.M. \$80
 Intro to PageMaker May 12 P.M., 25 A.M. \$80
 Intermed PageMaker May 5,23 8:30-4:30 \$150
 Intro to Microsoft Works May 16 P.M. \$80
 Intro to M.S. Word May 3 P.M., May 12 A.M.,
 May 19 P.M., May 27 P.M. \$80
 Intermed M.S. Word May 18,24 8:30-4:30 \$150
 Intro to Microsoft Excel May 20 A.M. \$80
 Intro to Hypercard June 1 A.M. \$80
 BCIT Full Time: 432-8419, Part Time: 434-1610
 MS Word (PC & MAC) 6 Wks May 28 \$95
 COMPUTERLAND Vanc., Burnaby, Richmond 683-6152
 Intro Word (MAC) May 5 V, 16 V, 31 V \$180
 Interm Word (MAC) May 11 V, 26 V \$180
 Macintosh Basic Skills May 3 V, 24 V \$180
 Intro Macintosh Pagemaker May 6 V \$180
 Macintosh Pagemaker Interm. May 19 V \$180
 Folkstone Design, 986-8060, Downtown Vanc.
 Aldus PageMaker, May 16 \$175

CALENDAR

MAY 1988						
SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Excel Intro (MAC) May 17 V, May 27 V \$180
 Excel Interim (MAC) May 9 V \$180
 Microsoft Word long documents, May 28 \$175
 McKAY 2151 Burrard St, Vanc. 736-7221 Call for details
 Desktop Publishing / Graphic Arts 12 weeks
 SOFTSHELL 4692 Quebec Street, Vanc. 876-5790
 Hypercard Productivity Workshop
 May 21 9:00 - 4:00 Byte Shop Burrard & 6th \$130
 Excel Tips and Shortcuts
 June 4, 9:00 - 4:00 Byte Shop, Burrard & 6th \$150

OS/2

THE COMPUTER PLACE 860 Burrard St, 688-2992
 INTRO OS/2 May 31 \$179

OUT OF TOWN

Canadian Hi Technology Show
 Ottawa May 3-4 (613)731-9850
 CIPS Congress 88 Information Power
 Toronto May 18-19 (416) 593-4040
 CITEX '88 Telecommunications Exhibition,
 Toronto May 18-19 (416)274-5505
 Comdex Spring Atlanta May 9-12 (617) 449-660
 Intn'l Symposium on Medical Informatics & Education
 Victoria May 15-19 (604) 721-8475
 Montreal International Computer Show Jun 8-10 Montreal 1-416-5505
 Unix 88/etc. Metro Toronto Convention Centre, May 17-19 Call
 Fawn Lubman or June Annan (416)239-3043

PROGRAMMING & DEVELOPMENT

BCIT Full Time: 432-8419, Part Time: 434-1610
 Computer Systems Intro May 28 6 wks \$139
 Intro to Electronics M-F May 16 3 wks \$299
 COMPUCOLLEGE Vancouver 682-6600, Burnaby 435-2424,
 Richmond 273-0373 Continuous intake call for start.
 Computer Programming & Systems Analysis
 480 hours Full Time Diploma Course
 Micro Computer Electronic Technology
 480 hours Full Time Diploma Course
 DOPPLER 101 W 5th Ave, 875-0212
 dBase III + Programming May 6 \$175
 VANCOUVER SCHOOL BOARD 736-7241
 BASIC, May May 17 5 wks 8-10 pm \$80
 C Level II May 16 5 wks 8-10 pm \$80

SPREADSHEETS

ACCESS CENTRE Lonsdale Quay North Van 984-4671
 Lotus 123 Start anytime, computer based training-selfpaced
 tutorials (av.20 hrs, no max.) \$140
 COMPUCOLLEGE Vancouver 682-6600, Burnaby 435-2424,
 Richmond 273-0373 Continuous intake call for start.
 Micro Computer Business Applications
 480 hours Full Time Diploma Course
 COMPUTER PLACE 860 Burrard, 688-2992
 Intro Lotus 1-2-3 May 4, 10 & 18 \$179
 Int. Lotus 1-2-3, May 5, 11 & 19 \$179
 COMPUTERLAND Vanc., Burnaby, Richmond 683-6152
 Lotus 123 Intro May 5R, 9V, 18B, 26V, 30R \$180
 Lotus 123 Interim May 13 B, May 27 V \$180
 Lotus 123 Adv. May 20 V \$180
 COMPUTER STATION 2130 Burrard St, Van. 732-8621
 Fast Track Lotus May 11 & 12, 26 & 27 \$325
 Intro to Lotus 123, May 11, 26 \$175
 Intermediate Lotus 123, May 12, 27 \$175
 DOPPLER 101 W. 5th, Vancouver 875-0261,
 Lotus 123 Intro, May 17 \$175
 Lotus 123 Advanced, May 31 \$175
 DRAKE Suite 100 - 1111 Melville St., Vanc. 669-8789
 Intro Lotus 123 1 day May 11, 20, 31 \$175
 FIALA, BONNER 810-1112 W Pender St. Van., 684-1022

Lotus 123 Level 1 1 Day May 4, 20, 30 \$175
 Lotus 123 Level 2 1 Day May 12 \$175
 Folkstone Design, 986-8060, Downtown Vanc.
 Microsoft Excel, May 14 \$175
 MICROAGE 3609 W 16th Ave, Vancouver 222-1010
 Lotus 123 Part I May 6, 13 \$175
 Lotus 123 Part II May 24 \$175
 PBSC 1350-1140 W. Pender St 689-7272
 Lotus 123 May 17 \$195
 Lotus 123 level 2, May 24 \$195
 Lotus 123 Advanced Micros May 11 \$195
 Lotus For Executives, May 14 \$195
 Supercalc 4, May 16 \$195
 PCTI 200-247 Abbot St Van. 682-5448 12 hour courses
 Lotus 123 II May 4/5, May 9/10 days or May 24/31/Jun 7/14
 evenings \$150
 Lotus 123 Macros May 21 \$150
 PRIMA 207-3900 E Hastings, 294-4567 call for start dates
 Lotus 123 Introduction, May 18, 25 1 day \$180
 Lotus Advanced June 1, 8 1 day \$180
 VANCOUVER COMMUNITY COLLEGE 875-8200
 Intro to Lotus 123 1 day May 14, 26 \$140
 Intermediate Lotus 1 day May 27 \$140
 Advanced Lotus 4 wks May 4 7-10 pm \$140
 VANCOUVER SCHOOL BOARD 736-7241
 Lotus 123, May 26-27 all day \$125
 Lotus 5 wks May 17 5:30-7:30 or 8-10 pm \$80
 Lotus 5 wks May 19 5:30-7:30 or 8-10 pm \$80
 Lotus L II 5 wks May 18 5:30-7:30 \$80
 Lotus Accounting 5 wks May 19 8-10 pm \$80
 VP Planner Lev. II May 14 1-3 pm \$80
 Excel 5 wk May 17 8-10 pm \$80
 MS Works 5 wks May 16 5:30-7:30 pm \$80
 Power User's Lotus May 19 5:30-7:30 pm \$80
 VAN.SOFTWARE CENTRE 300-1190 Melville 669-9800
 Intro to Lotus 123 1 Day May 4 or 19 \$180
 Intermediate Lotus 1 Day May 13 or 25 \$180

TELECOMMUNICATIONS

PBSC 1350-1140 W. Pender St 689-7272 (call for start)
 Crosstalk \$195
 SIMON FRASER UNIVERSITY 291-3844
 Semiconductor Lasers & LEDs for Telecommunications
 May 4 9-1PM \$105
 VANCOUVER DESKTOP PUBLISHING CENTRE Ltd
 1150 Homer St 681-9161, Stephen Osborne, Roedy Green
 Managing a Modem 1 day Call for dates \$129

USING YOUR PC

ACCESS CENTRE Lonsdale Quay North Van 984-4671
 Basic Operating Skills Start anytime, comp. based
 training-self paced tutorials (av.12 hrs, no max.) \$125
 BARKEL 211 - 3030 Lincoln Ave, Coquitlam 464-8717
 MS DOS Tutorial phone for details
 BCIT Full Time 432-8419, Part Time: 434-1610
 Computing for the Timid 4 Wks May 9 \$65
 Understanding DOS 6 Wks Burnaby: May 24, Coquitlam
 May 30 \$85
 COMPUTERLAND Vanc., Burnaby, Richmond 683-6152
 Intro to Micros May 10 V \$180
 DOS May 4 V, 12 R, 17 V, 30 R \$180
 THE COMPUTER PLACE 860 Burrard St, 299-3003
 MS-DOS May 2 & 13 \$179
 COMPUTER STATION 2130 Burrard St, Van. 732-8621
 Intro DOS, 1/2 day \$95, May 4, 13, 25 \$160
 DRAKE Suite 100 - 1111 Melville St., Van. 669-8789
 All Day DOS May 12, 24 \$125
 Advanced DOS May 13 \$125
 DOPPLER 101 W. 5th, Vancouver 875-0261
 Intro DOS, 1 Day Every Mon May - Sept \$175
 FIALA, BONNER 810-1112 W Pender St. Van., 684-1022
 Introduction to Computers May 17, 21 \$175
 DOS Level 1 May 9, 25 \$175
 DOS Level 2 May 9, 25 \$175
 MICROAGE 3609 W 16th Ave, Vancouver 222-1010
 Intro to PCs/DOS May 3, 26 \$175
 Advanced DOS May 27 \$175

PBSC 1350-1140 W. Pender St 689-7272
 Intro to Micros May 18 \$195
 DOS, May 4, 16, 26 \$195
 Advanced DOS, May 19 \$195
 DOS Level 1 & 2, May 21 \$195
 PCTI 200-247 Abbot St Van. 682-5448 12 hour courses
 Intro IBM-PC & Popular Software May 2/3, May 16/17
 days and May 26/June 2/9/16 \$150
 PRECEPT 735 Clark Dr, Vancouver, 255-3198
 Intro to Computing (IBM) 2 sessions 8 hours
 May 16/17, 26/27, 4 sessions May 30, June 2 \$120
 Harnessing DOS May 19/20 8 hours \$140
 PRIMA 207-3900 E. Hastings Van. 294-4567 Call for start/DOS
 Introduction, May 9, 16 1 day \$180
 DOS Advanced, May 30, June 6 1 day \$180
 VANCOUVER COMMUNITY COLLEGE 875-8200
 Intro Computers Starts May 7, 9, 10, 12, 21 \$130
 Intro IBM PC & Compatibles May 16/17 \$120
 Intro to Personal Computing May 10 \$60
 Know Your PC Hardware May 1 1 day \$105
 Harnessing DOS May 19/20 1-5 pm 2 sess. \$140
 Intro to MS-DOS May 7 1 day 9-4:30 pm \$115
 PC Business Software May 10 5wks. even \$150
 Using PC DOS May 21/28 9:30-4:30 2 sess \$150
 Batch File Prog May 14 9:30-4:30 1 day \$105
 Hard Disk Management May 15 1 day \$105
 VANCOUVER SCHOOL BOARD 736-7241
 Hard Disk Man. May 18 5 wk 5:30-7:30 PM \$80
 IBM PC Intro. May 19-20 \$125
 IBM PC Intro. May 16 5 wk 5:30-7:30 PM \$80
 IBM PC Intro May 16 5 wks 8-10 pm \$80
 IBM PC Intro. May 18 5 wk 5:30-7:30 PM \$80
 IBM PC Intro May 18 5 wks 8-10 pm \$80
 IBM PC LIL May 16 5 wk 5:30-7:30 PM \$80
 IBM PC LII May 16 5 wks 8-10 pm \$80
 Understanding MS-DOS May 18 8-10 pm \$80
 VAN. SOFTWARE CENTRE 300-1190 Melville 669-9800
 DOS Orientation 9-5 PM May 2 or 17 \$180
 VANCOUVER DESKTOP PUBLISHING CENTRE Ltd
 1150 Homer St 681-9161, Stephen Osborne, Roedy Green
 Introduction MSDOS call for start dates \$119
 Taking Command of MSDOS \$69
 SuperCharging the Office PC \$129
 Troubleshooting H/ware \$129

WORD PROCESSING

ACCESS CENTRE Lonsdale Quay North Van 984-4671
 Word Perfect, MS Word, Displaywrite, Multimate Start
 anytime, computer based training-selfpaced tutorials (average 20
 hrs, no max.) \$140
 BARKEL 211 - 3030 Lincoln Ave, Coquitlam 464-8717
 Wang, Word Perfect, Wordstar phone for details
 BCIT Full Time: 432-8419, Part Time: 434-1610
 MS Word (PC & MAC) 6 Wks May 28 \$95
 COMPUTERLAND Vanc., Burnaby, Richmond 683-6152
 DisplayWrite May 3 B, May 20 R, May 31 B \$180
 DisplayWrite Interim. May 24 V \$180
 MS Word Intro May 5 & 6 V, May 16 & 17 R \$325
 MS Word Interim May 10 & 11 R; 26 & 27B \$325
 MS Word Advanced May 20 B \$180
 Multimate Intro May 10 B, May 25 V \$180
 Multimate Interim May 19 V \$180
 Multimate Advanced May 6 B \$180
 WordPerfect Intro May 10 & 11 V; 24 & 25 R \$325
 WordPerfect Interim May 2 V, May 19 B \$180
 WordPerfect Advanced May 12 B \$180
 THE COMPUTER PLACE 860 Burrard St, 688-2992
 INTRO M.S. WORD May 6, 20, 30 \$179
 INTRO WORDPERFECT May 9 & 16 \$179
 INTERMED WORDPERFECT May 12 & 17 \$179
 INTRO WORDPERFECT 5 May 26 \$179
 INTERMED WORDPERFECT 5 May 27 \$179
 COMPUTER STATION 2130 Burrard St, Van. 732-8621 Word
 Processing, WordPerfect, MS-Word, MultiMate or DisplayWrite
 4, Intro or Advanced, 1 day course. Repeats May 10, 19, 31
 \$175

CALCON

BUSINESS PRODUCTS

SPRING & SUMMER SPECIALS

Refilled Toner Cartridges

Canon, HP, QMS, Apple
and others - Series I

\$69⁹⁵



Canon, HP, QMS, Apple
and others - Series II

\$79⁹⁵



Canon PC Copier

\$69⁹⁵



New Toner Cartridges

Canon, HP, QMS, Apple
and others - Series I

\$148⁰⁰



Canon, HP, QMS, Apple
and others - Series II

\$158⁰⁰



Lateral File Cabinets

	REGULAR	SALE
2-DR Recessed Front	\$486 ⁰⁰	\$369 ⁰⁰
3-DR Recessed Front	\$660 ⁰⁰	\$469 ⁰⁰
4-DR Recessed Front	\$809 ⁰⁰	\$599 ⁰⁰

Computer Chair

	REGULAR	SALE
ER4 Gas Lift, Swivel, Fully Adjustable, Comfort-Formed	\$279 ⁰⁰	\$199 ⁰⁰

Anti-Static Floor Mats		REGULAR	SALE
3' X 4'		\$189 ⁰⁰	\$149 ⁰⁰
4' X 5'		\$250 ⁰⁰	\$194 ⁰⁰

Surge Protector Bars		REGULAR	SALE
6-OUTLET	#50165	\$49 ⁹⁵	\$39 ⁹⁵
	#50170	\$69 ⁹⁵	\$59 ⁹⁵
	WITH NOISE PROTECTION		

Computer Labels

	REGULAR	SALE
3 1/2" X 15/16"		
box of 5,000	\$59 ⁹⁵	\$39 ⁹⁵
box of 15,000	\$177 ⁹⁵	\$119 ⁹⁵

Electronic Typewriter

Royal Beta 3000

- automatic correction
- auto-underscore
- daisywheel printer
- nice touch
- medium duty

REGULAR \$699⁰⁰

SALE

\$499⁰⁰

875-0977

COMPUTER CALENDAR

DOPPLER 101 W. 5th, Vancouver, 875-0261

WordPerfect introduction, May 18 \$175

Microsoft Word Introduction, May 11 \$175

Multimate Advanced, May 13 \$175

DisplayWrite IV Intro May 4 \$175

DisplayWrite IV Advanced, May 25 \$175

DRAKE #100 - 1111 Melville St. 669-8789

Multimate-Introduction May 4, 20 \$175

Multimate-Intermediate May 10 \$175

WordPerfect-Intro May 2, 10, 26 \$175

WordPerfect-Intermediate May 6, 25 \$175

DisplayWrite 4-Introduction May 18 \$175

DisplayWrite 4-Intermediate May 19 \$175

MS-Word-Introduction May 5, 24 \$175

MS-Word-Intermediate May 16 \$175

Symphony Word Proc. May 31 \$175

FIALA, BONNER 810-1112 W Pender St.

Van., 684-1022

Multimate Advantage L.1

Word Level 1 May 5 1 Day \$175

Word Level 2 May 23 1 Day \$175

WordPerfect L.1 May 2, 18, 26 1 Day \$175

WordPerfect L.2 May 10 1 Day \$175

Displaywrite 4 L.1 May 13, 16 1 Day \$175

MICROAGE 3609 W 16th Ave, Van 222-1010

MS Word Part I May 12 \$175

MS Word Part II May 20 \$175

Word Perfect Part I May 9 \$175

Word Perfect Part II May 17 \$175

PBSC 1350-1140 W. Pender St 689-7272

DisplayWrite 4, May 6 \$195

DisplayWrite 4 level 2, May 20 \$195

Microsoft Word, May 9 & 19 \$195

Microsoft Word level 2, May 12 & 24 \$195

Microsoft Word level 3, May 31 \$195

Multimate Advantage II, May 6 \$195

Multimate Advantage II L. 2, May 13 \$195

Multimate Advantage II L.3, May 26 \$195

Samna Word IV, May 4 \$195

Samna Word IV level 2, May 18 \$195

WordPerfect, May 5 & 20 \$195

WordPerfect level 2, May 17 & 27 \$195

WordPerfect level 3, May 25 \$195

PCTI 200-247 Abbot St Van. 682-5448 12 hrs.

Multi-Mate May 25/26, May 30/31 \$150

MS Word 4.0 May 14 \$150

WordPerfect 4.2 May 18/19 \$150

PITMAN 1490 W. Broadway, Van. 738-7848.

Word Processing - Concepts & Theories;

Applications; Production; Advanced

PRIMA 207-3900 E Hastings, Burn. 294-4567

Using WordPerfect 7-10 PM \$180

WordPerfect Intro May 12 & 19 \$180

WordPerfect Advanced, May 26 \$180

SIMON FRASER UNIVERSITY 291-3844

MS Word (Beginners) May 14 all day \$125

MS Word (Intermediate) May 28 \$125

VANCOUVER COMMUNITY COLLEGE

875-8200

Intro to WordPerfect May 6, 28, 31 \$130

Intermediate WordPerfect May 9 \$130

Intro to Multimate May 12 \$130

MS Word Starts May 2 or 9 4 wks \$150

VANCOUVER SCHOOL BOARD 736-7241

Word Perfect . May 12-13 all day \$125

Multimate May 18 5 wks 8-10 pm \$80

WordStar May 16 5 wks 8-10 pm \$80

WordPerfect May 16 5 wks 5:30-7:30 \$80

WordPerfect May 16 5 wks 8-10 pm \$80

WordPerfect L2 May 19 5 wks 8-10 pm \$80

MS-Word L2 May 16 5 wks 5:30-7:30 \$80

VAN.SOFTWARE CENTRE 300-1190

Melville St 669-9800

Intro Multimate 9-5 PM May 2 or 20 \$180

Multimate Inter..9-5 PM May 9 or 14 \$180

Intro WordPerfect May 4 or 17 \$180

WordPerfect-Intermed May 11 or 24 \$180

Intro MS Word 4 May 6, 19, 31 \$180

MS Word 4 Int. 9-5 PM May 13/26 \$180

USER GROUPS

Amiga User Group Sunset Community
Centre (404 E. 51st at Fraser) Dave Allen 270-0064.

General Meeting May 11 7:30 PM

Beginners & Progr. May 25 BCIT Rm

129A 7 PM

Apple II User Group Burnaby Rugby Club

437-9935

Apple III SIG Monthly Kiyo Masuda

437-9935

Apple B.C. Computer Society Kiyo 437-9935

Beaver Valley Commodore Club First Tues

Montrose School Library John Vink 367-6426

Clipper Developers Association Meets first

Monday of month at SFU David 873-0747

Commodore Computer Club First Tues.

Sunset Comm. Ctr. 738-3311 BBS 271-1082

DPMA Member Benefit: 324-5511 Video

"The Sky's the Limit (Part 1) Professional

Dev. May 17, 5:45 p.m.

Kaypro Users Group/Vancouver Portable

Computer Club 3rd Monday of the month,

Kaypro Canada in Richmond (all CP/M users

welcome) 278-5776

Mac User Group Meeting BC Apple Society,

WCB Building, 6951 Westminster Hwy (Kiyo

Masuda) 437-9935.

Mac SIG Macmillan Planetarium Archie Reid

985-5530

Mainland Mac Meeting 7:30 PM 2nd

Wednesday Rm 115 Kwantlen College, Surrey,

Les Robertson 437-9935

Maple Ridge Computer User Group 467-

2647 Rm 2012 Maple Ridge Sr. Secondary

School 7:30 PM, 2nd Tues. of the month. Free

NEC APC Users Group Bi-monthly Lee 980-

5825

North American Amstrad User's Group. For

newsletter, membership application send

S.A.S.E. to:

65-13880 - 74th Ave, Surrey V3W 7E6

Novell Network Users Peter Whitelaw 669-

8789 supports LANs, meets monthly.

Port Coquitlam Computer Users Group

Meets 1st & 3rd Tues Poco Rec Centre 2100

Wilson Ave 942-4286

TI Computer Club meets 2nd week of each

month in Central Richmond. Phone Keith at

261-2739 for details

The New Apple Alliance May Chow 435-7609

Last Saturday of the month in Kitsilano

Neighbourhood House.

Vancouver Network User's Group Les

Lebrant 275-2829 First Monday of the month

Vancouver PC Users Group, MacMillan

Planetarium 438-6009, \$20/year membership,

7:30 PM Thu May 12

Vantari 3096 E. Hastings (Hastings Community

Centre) Libby Wong 251-4901 7:30-10:30 PM

(2nd Wed) May 11

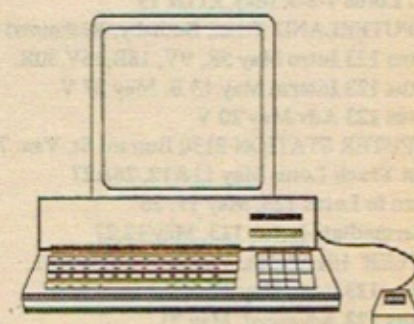
Wang System User Association 736-8841 ext

227 J-P Doiron

99 Users Co-op (TI-99) 2nd & 4th Thurs 7 p.m.

at Cameron Rec Centre, Burnaby 526-3389.

\$30/year



Classified Ads

BBS

MINDLINK

8 phone lines 300-1200-2400 Baud Rates
Feature Packed 533-2312

EMPLOYMENT WANTED

EXPERIENCED SECRETARY, W.P. course, 80 WPM typing, Dicta, editing, will train on Desktop Publishing or any machine. Prefer growing computer company downtown. Tel 736-0623

INDEPENDENT CONSULTANT available for contract job. More than 12 years software experience. Specializing in IBM PC and Clipper. Mr. Huiwan Wong 873-4878

ELECTRONICS (COMPUTER OPTION)
GRADUATE, VVI, seeks permanent full time employment. May take part time to start. Call Don 823-6957

PROGRAMMER dBase III, Q&A, Clipper, Symphony. Leave message for Andy 683-0864

HARDWARE

MACINTOSH SE 20 MB computer. New in box. 1 Meg, 800 K drive 20 Meg HD, keyboard, programs, \$4750 obo. John 463-6233

MACINTOSH SE 20 HD \$4500 also 20 MEG JASMINE HARD DRIVE SCSI FOR THE Mac CALL HARI AT 731-7499

MACINTOSH SE 1 Meg RAM one 800 K internal drive 20 meg HD. still under warranty \$4000 MACINTOSH 512k enhanced 1 meg RAM, one 800k internal drive \$1500 PROGRAMS: Quark Xpress, MacServe 2.3, Hypercard \$1000, will sell individually or as a package. Call Lori 888-1224

1040 ST ATARI Monochrome + MacSac + 1200B Modem + Ready Set Go, Pagemaker, MSWord, \$1700 533-4524

20 MEG SCSI HARD DRIVE for Macintosh (Rodime) \$950 James 734-3995

TRS 80 COLOR COMPUTER 64k \$100 obo., Cassette recorder & patch cords \$60 obo. Colorsript W.P. program & manual \$25 obo. Cable converter \$10 obo. Prim wheels 951 Tempo 12, 359 Presidential 12, 356 Elite 12 \$10 each obo 420-8829

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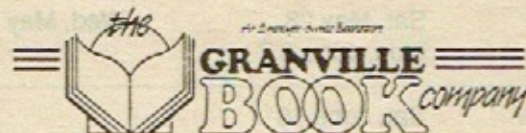
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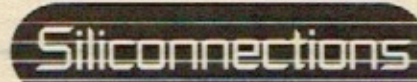
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